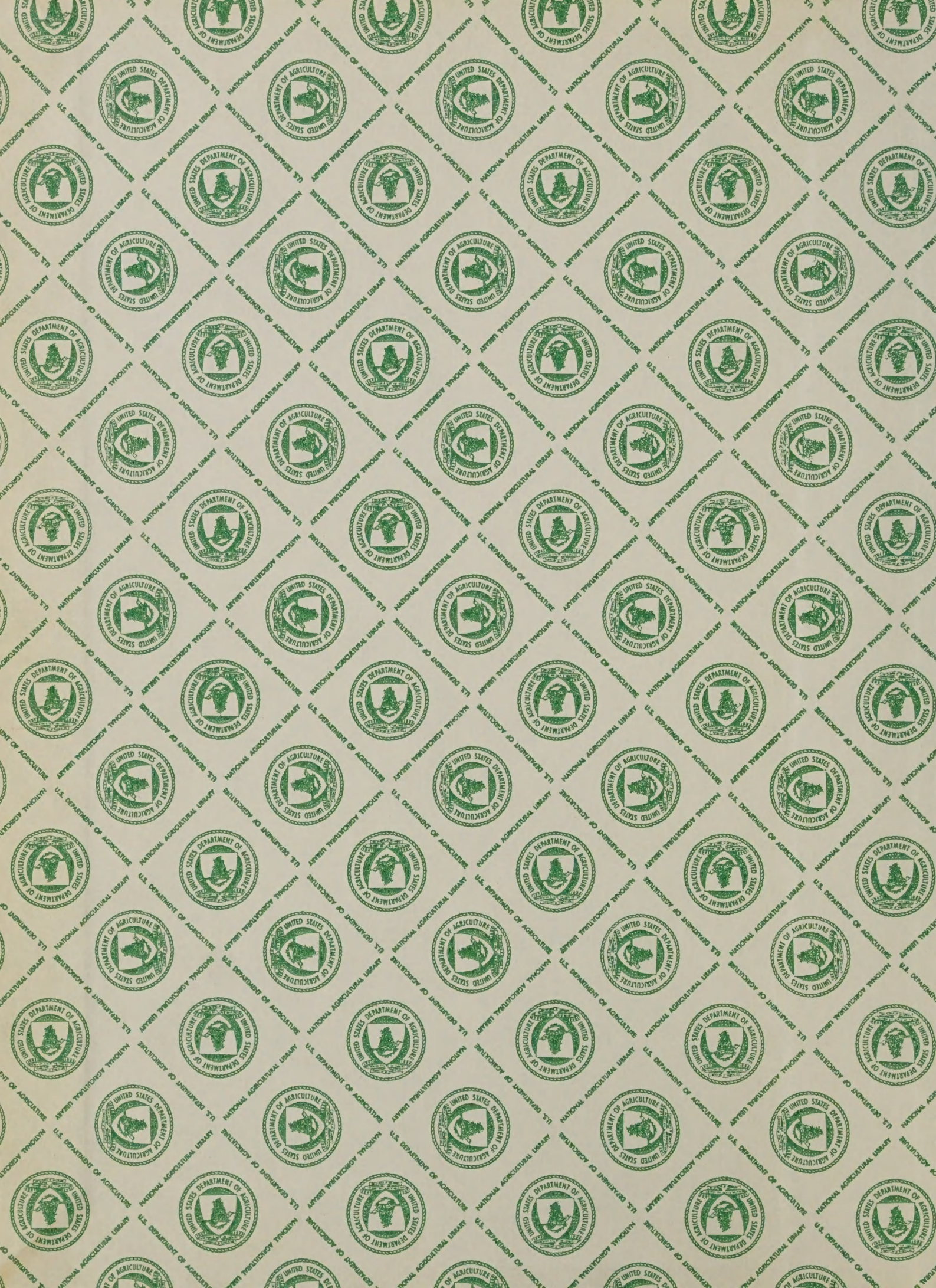
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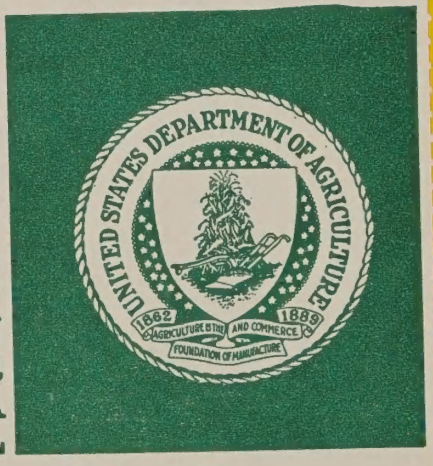


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#C Prepared for USAID/Haiti

by

Clarence Zuvekas, Jr.*
Consulting Economist
International Development Staff
U. S. Department of Agriculture

May 1978

* The views expressed in this document are those of the author and should not be regarded as representing the official position or policy of AID, USDA, or any other part of the U.S. Government.

710284

# PREFACE

This sector assessment is the product of research carried out intermittently between June 1977 and May 1978. The format for this study follows closely the Agricultural Sector Assessment Guidelines prepared by AID's Bureau for Latin America, though some modifications have been made.[1/] No primary data collection was deemed appropriate at this time. The study incorporates material on land tenure, income, and employment prepared by the author in draft form in August 1977 and revised in March 1978 (Zuvekas 1978).[2/] It also draws on a variety of other published and unpublished studies listed at the end of this document. USAID/Haiti staff and consultants who have contributed material for incorporation into the sector assessment include Harold Bauman, Pierre Brisson, Lloyd Clyburn, Joseph Conrad, Jacques Defay, Leslie Delatour, William Garvey, Jean Lafontant, Linda Morse, James Purcell, Terry Roe, William Sugrue, Elias Tamari, and perhaps others whose names inadvertently have been omitted.

There is no formal "Summary and Conclusions" section to this document, but readers whose time is limited are referred to Chapter 7.B for a summary discussion of the constraints to agricultural development identified in Chapters 4-6. Table 7.1 lists these constraints and assigns them a tentative ranking according to their degree of importance (1=major; 2=moderate; 3=minor). Our proposed strategy and programs is presented in Chapter 7.H. Given the

---

1/ The outline requires a certain amount of repetition, and while this may be useful for bureaucratic purposes some readers undoubtedly will suffer.

2/ For a complete reference, see the Bibliography at the end of this study. This same procedure for identifying references will be used throughout the text.

constraints facing agricultural development in Haiti, and the serious absorptive capacity of institutions in the agricultural sector, this writer recommends that AID efforts in the next few years concentrate on consolidation and improvement of existing programs, and on institution building, including a variety of short- and long-term training programs, both in-country and abroad (with emphasis on the former). This does not preclude the initiation of large-scale projects, but these should be relatively few in number.

Specific projects and programs are recommended in the following areas:

a. Erosion Control and Erosion Control/Irrigation Packages
b. Institution Building
   1) Base-level Organizations
   2) Ministry of Agriculture (DARNDR)
   3) Credit
   4) Research
c. Coffee Production and Marketing
d. Rural Road Construction

The study concludes by identifying 7 areas in which studies are recommended to provide more detailed information for future AID project development.

I am grateful to USAID Mission Director Lawrence Harrison, and to Agricultural Development Officer William Garvey and his staff, for their excellent support during the preparation of this document. I have also benefited from a critical review of a draft of the final chapter by Minister of Agriculture Agr. Eduoard Berrouet and his staff during a series of meetings from May 16 to May 19. Errors of fact and interpretation undoubtedly remain, and for these the responsibility is mine. Time constraints forced me to discuss some topics much too briefly, and it can only be hoped that others will provide more detailed information in a series of supplementary papers.

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## GLOSSARY OF ACRONYMS

| | |
|---|---|
| AGC | Administration Générale des Contributions |
| AGD | Administration Générale des Douanes |
| AID | (United States) Agency for International Development |
| BCA | Bureau de Crédit Agricole |
| BNRH | Banque Nationale de la République d'Haiti |
| CC | Conseil Communautaire |
| CIDA (Canada) | Canadian International Development Agency |
| CONADEP | Conseil National de Développement et de Planification |
| CTCIF | Compagnie des Tabacs Comme Il Faut |
| CUNA | Credit Union National Association, Inc. |
| DAP | Development Assistance Program |
| DARNDR | Département de l'Agriculture, des Ressources Naturelles et de Développement Rural |
| DTPTC | Département des Travaux Publiques, des Transports et des Communications |
| DRIPP | [Projet de] Développement Regional Integré de Petit-Goâve et Petit-Trou-de-Nippes |
| ERR | Economic Rate of Return |
| FAMV | Faculté d'Agronomie et de Médecine Vétérinaire |
| FAO | Food and Agriculture Organisation of the United Nations |
| FRG | Federal Republic of Germany |
| GDP | Gross Domestic Product |
| GNP | Gross National Product |
| GOH | Government of Haiti |

| | |
|---|---|
| HACHO | Haitian American Community Help Organization |
| HASCO | Haitian American Sugar Company |
| IBRD | International Bank for Reconstruction and Development (World Bank) |
| IDAI | Institut de Développement Agricole et Industriel |
| IDB | Inter-American Development Bank |
| IHPCADE | Institut Haitien de Promotion du Café et des Denrées d'Exportation |
| IHS | Institut Haitien de Statistique |
| IICA | Instituto Interamericano de Ciencias Agrícolas |
| ILO | International Labour Organisation |
| IMF | International Monetary Fund |
| OAS | Organization of American States |
| ODN | Organisme de Développement du Nord |
| ODVA | Organisme de Développement de la Vallée de l'Artibonite |
| RTA | Régie du Tabac et des Alumettes |
| SAC | Société Agricole de Crédit |
| SCH | Service Chrétien d'Haiti |
| SEN | Société d'Equipement Nationale |
| SENACA | Service National de Commercialisation Agricole |
| UN-ECLA | United Nations Economic Commission for Latin America |
| UNDP | United Nations Development Programme |
| US-ICA | United States International Cooperation Administration |
| US-IIAA | United States Institute of Inter-American Affairs |
| USAID/Haiti | United States Agency for International Development, Haiti Mission |
| USDA | United States Department of Agriculture |
| USDHEW | United States Department of Health, Education, and Welfare |
| USOM/Haiti | United States Operations Mission to Haiti |

PART I

ANALYTICAL DESCRIPTION

# CHAPTER 1

# AGRICULTURE AND THE NATIONAL ECONOMY

## A. ECONOMIC GROWTH SINCE 1960

### 1. Trends in Gross Domestic Product

Haiti's Gross Domestic Product (GDP) has been increasing slowly but steadily since 1967, [1/] following a prolonged period of stagnation. Real GDP in 1967 was virtually unchanged from its 1960 level, and in per capita terms it was 10 percent lower. But from 1967 to 1976 it increased at an annual rate of 3.0 percent, or 1.3 percent per capita. Even after this recovery, however, per capita GDP in 1976 was only 2 percent higher than in 1960 (see Table 1.1).

The per capita GDP figure in 1976, ₲1,105 or US$221 in current prices, was the lowest in the Western Hemisphere and probably kept Haiti among the 30 lowest-income countries in the world. Other level-of-living indicators, discussed in Chapter 3, support the impression of extreme poverty conveyed by the GDP data.

Table 1.2 provides information on GDP by type of expenditure. Real consumption continues to average close to 95 percent of the GDP, and an increasing proportion of it consists of imports. Gross domestic investment has risen sharply in real terms from an average of 6-7 percent of the GDP in the 1960s to 13-14 percent in the 1970s. Significant increases have occurred in both private and public investment. A high percentage of the latter is financed by foreign loans and grants.

---

1/ Macroeconomic data in Haiti are reported for fiscal years ending September 30.

Table 1.1

Gross Domestic Product at Market Prices, 1960-1976[a]

| | GDP in Current Prices (millions of gourdes) | GDP in 1955 Prices (millions of gourdes) | Population[b] (thousands) | Per Capita GDP in Current Prices (gourdes) | Per Capita GDP in 1955 Prices (gourdes) |
|---|---|---|---|---|---|
| 1960 | 1,366 | 1,523 | 3,623 | 377 | 420 |
| 1961 | 1,355 | 1,478 | 3,679 | 368 | 402 |
| 1962 | 1,409 | 1,595 | 3,736 | 377 | 427 |
| 1963 | 1,474 | 1,564 | 3,793 | 389 | 412 |
| 1964 | 1,626 | 1,539 | 3,852 | 422 | 400 |
| 1965 | 1,766 | 1,572 | 3,912 | 451 | 402 |
| 1966 | 1,767 | 1,563 | 3,972 | 445 | 394 |
| 1967 | 1,846 | 1,530 | 4,034 | 458 | 379 |
| 1968 | 1,840 | 1,578 | 4,098 | 449 | 385 |
| 1969 | 1,959 | 1,639 | 4,163 | 471 | 394 |
| 1970 | 2,036 | 1,649 | 4,235 | 481 | 389 |
| 1971 | 2,226 | 1,756 | 4,315 | 516 | 407 |
| 1972 | 2,316 | 1,773 | 4,368 | 530 | 406 |
| 1973 | 2,993 | 1,826 | 4,440 | 674 | 411 |
| 1974 | 3,487 | 1,888 | 4,514 | 772 | 418 |
| 1975 | 4,333 | 1,912 | 4,584 | 945 | 417 |
| 1976 | 5,156 | 1,994 | 4,668 | 1,105 | 427 |

Source: IHS (1977: 47, 328, 330) and IDB estimates.

[a]Fiscal years ending September 30.

[b]Population figures are for August.

Table 1.2

Gross Domestic Product by Type of Expenditure, 1960-1976

(percentage composition of value in 1955 prices)

| | Consumption | | | Gross Domestic Investment | | | Resource Gap | Total |
|---|---|---|---|---|---|---|---|---|
| | Private | Public | Total | Private | Public | Total | | |
| 1960 | | | 85.4 | | | 7.3 | 7.3 | 100.0 |
| 1961 | | | 95.2 | | | 6.9 | -2.1 | 100.0 |
| 1962 | | | 84.4 | | | 6.9 | 8.7 | 100.0 |
| 1963 | | | 89.0 | | | 7.0 | 4.0 | 100.0 |
| 1964 | | | 94.6 | | | 6.5 | -1.1 | 100.0 |
| 1965 | 88.5 | 8.8 | 97.3 | 2.8 | 3.6 | 6.4 | -3.7 | 100.0 |
| 1966 | 89.4 | 8.9 | 98.3 | 2.6 | 3.1 | 5.7 | -4.0 | 100.0 |
| 1967 | 88.6 | 8.7 | 97.3 | 1.7 | 4.2 | 5.9 | -3.2 | 100.0 |
| 1968 | 85.8 | 8.8 | 94.6 | 3.2 | 3.0 | 6.2 | -0.8 | 100.0 |
| 1969 | 85.4 | 8.8 | 94.2 | 4.9 | 2.2 | 7.1 | -1.3 | 100.0 |
| 1970 | 86.3 | 9.2 | 95.5 | 8.5 | 2.1 | 10.6 | -6.1 | 100.0 |
| 1971 | 80.5 | 9.9 | 90.4 | 7.4 | 2.7 | 10.1 | -0.5 | 100.0 |
| 1972 | 82.6 | 8.8 | 91.4 | 8.8 | 3.0 | 11.8 | -3.2 | 100.0 |
| 1973 | 87.7 | 7.8 | 95.5 | 10.0 | 3.4 | 13.4 | -8.9 | 100.0 |
| 1974 | 86.5 | 7.3 | 93.8 | 9.6 | 4.8 | 14.4 | -8.2 | 100.0 |
| 1975 | 91.8 | 7.0 | 98.8 | 7.7 | 7.9 | 15.6 | -14.4 | 100.0 |
| 1976 | 87.5 | 7.5 | 95.0 | 9.0 | 11.6 | 20.6 | -15.6 | 100.0 |

Source: IHS (1977: 328-329) and IDB estimates.

The national accounts data reported above should be interpreted cautiously; as might be expected, they are very weak. In calculating the output of the agricultural sector, for example, the Institute Haitien de Statistique (IHS) assumes that crop production consumed by humans and animals has been constant in per capita terms. The constant-dollar value of this production (in 1955 prices) is obtained each year simply by multiplying the 1955 figure by the index of total population. The great bulk of sector output is thus assumed to be growing at a steady rate, when in fact it fluctuates significantly from year to year in accordance with variations in climatic conditions. Moreover, there is reason to believe that this assumption is also unrealistic over the long run, since declining per capita food production is reported by the USDA and other observers. 2/ Most other sector activities--crop production for processing, livestock production, apiculture, forestry, hunting, and fishing--are also estimated rather crudely. Only with exports is there any true attempt to measure output.

The statistical base for computing the national accounts is weak not only for agriculture but also for other sectors of the economy. The IHS, which is in charge of the national accounts, has only an incomplete record of public sector transactions because other government

---

2/ The USDA reports a decline in per capita food production of 16 percent between 1961-65 and 1975-76 (see Chapter 2). This reported decline is somewhat exaggerated if one accepts the results of the 1971 census, which indicated a long-term population growth rate of 1.6 percent, compared with the USDA's assumption of 1.9 percent. However, this does not change the general picture presented by the USDA data. The FAO index of agricultural production, which has greater coverage than the USDA index but makes fewer adjustments to government data, shows a rise in per capita production from 100 in 1961-65 to 106 in 1975-76.

agencies are unable or unwilling to provide the necessary information (IBRD 1976: Vol. I, pp. 24-25). Measurement of the output of the remaining sectors of the economy is plagued by other problems. [3/] Savings and investment data should be interpreted with caution.

## 2. Price Trends

Between 1960 and 1970 price increases in Haiti were modest, with consumer prices and the GDP deflator both rising at an annual rate of 2.8 percent (see Table 1.3). Subsequently, however, Haiti's open economy was affected by worldwide inflationary trends, and from 1970 to 1976 the 2 price indices rose at annual rates of 12.2 percent and 13.1 percent, respectively. Inflationary pressures, though, have been easing: the consumer price index rose by a modest 7.0 percent in 1976, and partial data suggest that it increased by less than 10 percent last year.

Inflation during the 1970s was more rapid in Haiti than in its principal trading partner, the United States, where the GNP deflator rose by 6.6 percent annually between 1970 and 1976. Nevertheless, the value of the gourde was maintained at ¢5.00 = US$1.00.

---

[3/] For a description of the methodology used to calculate output of the various sectors of the economy, see Haiti, IHS (1974: 71-116).

Table 1.3

Price Increases, 1960-1976

| | Consumer Price Index (1970 = 100) | GDP Deflators (1955 = 100) | | | | |
|---|---|---|---|---|---|---|
| | | Total GDP | Consumption | Investment | Exports | Imports |
| 1960 | 76.0 | 89.7 | 94.7 | 95.0 | 74.1 | 95.2 |
| 1961 | 78.9 | 91.7 | 96.4 | 103.2 | 71.3 | 95.5 |
| 1962 | 78.4 | 88.3 | 95.4 | 103.5 | 65.1 | 93.7 |
| 1963 | 81.8 | 94.2 | 98.5 | 106.2 | 69.6 | 87.8 |
| 1964 | 89.4 | 105.7 | 106.6 | 115.0 | 78.2 | 87.1 |
| 1965 | 91.4 | 112.3 | 113.3 | 121.3 | 79.0 | 91.4 |
| 1966 | 98.9 | 113.1 | 114.5 | 111.0 | 76.4 | 89.5 |
| 1967 | 96.1 | 120.7 | 121.1 | 118.3 | 77.0 | 85.4 |
| 1968 | 97.3 | 116.6 | 118.7 | 106.0 | 73.4 | 81.7 |
| 1969 | 98.7 | 119.5 | 121.8 | 116.1 | 74.0 | 85.7 |
| 1970 | 100.0 | 123.5 | 122.0 | 99.1 | 87.2 | 80.5 |
| 1971 | 109.5 | 126.3 | 130.0 | 111.6 | 80.7 | 87.6 |
| 1972 | 113.1 | 130.6 | 135.3 | 105.0 | 81.5 | 93.1 |
| 1973 | 138.8 | 163.9 | 135.1 | 112.0 | 98.4 | 84.3 |
| 1974 | 159.5 | 184.7 | 186.0 | 140.5 | 129.6 | 127.2 |
| 1975 | 186.3 | 226.6 | 218.5 | 163.8 | 151.0 | 130.3 |
| 1976 | 199.4 | 258.6 | 248.4 | 193.9 | 169.5 | 143.3 |

Sources: IMF, International Financial Statistics; and Table 1.1.

## 3. Foreign Trade and the Balance of Payments

Exports of goods and non-factor services account for a modest and declining share of Haiti's GDP. In current prices, the export share fell sharply from 18.5 percent during 1960-62 to 12.7 percent during 1974-76 (Table 1.4). In constant (1955) prices, the decline was less precipitous, from 23.9 to 19.0 percent (Table 1.5). The real value of exports in 1974-76 was identical with that in 1960-62. In per capita terms it was 20 percent lower.

The balance-of-payments data in Table 1.6 show that merchandise exports in current dollars rose from US$33.1 million in 1960 to US$111.4 million in 1976. Increases in coffee prices have accounted for much of the increase in the last few years. In current dollars, the compound annual growth rate of Haiti's merchandise exports between 1960 and 1976 was 8.4 percent.

Imports are higher than exports and have been rising more rapidly. Although the share of imports in the GDP fell in current prices from 20.1 percent in 1960-62 to 19.0 percent in 1974-76, the import share in constant prices rose from 19.1 to 31.8 percent. The sharp increases in recent years have been facilitated by higher levels of public and private transfers and long-term capital inflows, and by the lower relative price of imports (see Table 1.3). The merchandise trade account, which had been only modestly in deficit during the 1960s, had a negative balance of US$47.1 million in 1976, with imports of US$158.5 million and exports of US$111.4 million. Between 1960 and 1976 merchandise imports in current dollars increased at a compound annual rate of 9.3 percent.

Table 1.4

Foreign Trade as a Percentage of the GDP, 1960-1976

(millions of gourdes, current prices)

| Year | Exports[a] (X) | Imports[a] (M) | GDP | X/GDP (percent) | M/GDP (percent) |
|---|---|---|---|---|---|
| 1960 | 270 | 242 | 1,366 | 19.8 | 17.7 |
| 1961 | 226 | 331 | 1,355 | 16.7 | 24.4 |
| 1962 | 269 | 258 | 1,409 | 19.1 | 18.3 |
| 1963 | 262 | 275 | 1,474 | 17.8 | 18.7 |
| 1964 | 224 | 265 | 1,626 | 13.8 | 16.3 |
| 1965 | 224 | 311 | 1,766 | 12.7 | 17.6 |
| 1966 | 207 | 298 | 1,767 | 11.7 | 16.9 |
| 1967 | 201 | 264 | 1,846 | 10.9 | 14.3 |
| 1968 | 232 | 269 | 1,840 | 12.6 | 14.6 |
| 1969 | 242 | 298 | 1,959 | 12.4 | 15.2 |
| 1970 | 272 | 332 | 2,036 | 13.6 | 16.3 |
| 1971 | 327 | 364 | 2,226 | 14.7 | 16.4 |
| 1972 | 308 | 406 | 2,316 | 13.3 | 17.5 |
| 1973 | 361 | 477 | 2,993 | 12.1 | 15.9 |
| 1974 | 469 | 658 | 3,487 | 13.4 | 18.9 |
| 1975 | 538 | 824 | 4,333 | 12.4 | 19.0 |
| 1976 | 644[b] | 989[b] | 5,156 | 12.5[b] | 19.2[b] |

Source: Same as Table 1.1.

[a]Goods and non-factor services.

[b]Balance-of-payments data in Table 1.6 suggest that both exports and imports in 1976 are underestimated.

Table 1.5

Foreign Trade as a Percentage of the GDP, 1960-1976

(millions of gourdes, 1955 prices)

| Year | Exports[a] (X) | Imports[a] (M) | GDP | X/GDP (percent) | M/GDP (percent) |
|---|---|---|---|---|---|
| 1960 | 367 | 254 | 1,523 | 24.1 | 16.7 |
| 1961 | 317 | 347 | 1,478 | 21.4 | 23.5 |
| 1962 | 413 | 275 | 1,595 | 25.9 | 17.2 |
| 1963 | 376 | 314 | 1,564 | 24.0 | 20.1 |
| 1964 | 287 | 304 | 1,539 | 18.6 | 19.8 |
| 1965 | 283 | 340 | 1,572 | 18.0 | 21.6 |
| 1966 | 271 | 333 | 1,563 | 17.3 | 21.3 |
| 1967 | 261 | 309 | 1,530 | 17.1 | 20.2 |
| 1968 | 316 | 329 | 1,578 | 20.0 | 20.8 |
| 1969 | 327 | 348 | 1,639 | 20.0 | 21.2 |
| 1970 | 312 | 412 | 1,649 | 18.9 | 25.0 |
| 1971 | 405 | 415 | 1,756 | 23.1 | 23.6 |
| 1972 | 378 | 436 | 1,773 | 21.3 | 24.6 |
| 1973 | 367 | 530 | 1,826 | 20.1 | 29.0 |
| 1974 | 362 | 517 | 1,888 | 19.2 | 27.4 |
| 1975 | 356 | 633 | 1,912 | 18.6 | 33.1 |
| 1976 | 380 | 690 | 1,994 | 19.1 | 34.6 |

Source: Same as Table 1.1.

[a]Goods and non-factor services.

[b]Balance-of-payments data in Table 1.6 suggest that both exports and imports in 1976 are underestimated.

Table 1.6

Summary Balance of Payments Data, 1960, 1965, and 1970-1976

(millions of U.S. dollars)

| | 1960 | 1965 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|---|---|
| Current Account | | | | | | | | | |
| Merchandise Exports | 33.1 | 36.8 | 39.1 | 45.6 | 43.2 | 56.1 | 70.5 | 80.5 | 111.4 |
| Merchandise Imports | -38.4 | -41.6 | -47.8 | -53.6 | -58.5 | -68.4 | -96.7 | -121.9 | -158.5 |
| Exports of Services | -2.5 | -17.7 | 13.9 | 18.9 | 21.1 | 22.5 | 22.0 | 25.7 | 29.6 |
| Imports of Services | | | -25.4 | -26.6 | -28.3 | -36.7 | -43.7 | -47.7 | -61.8 |
| Private Transfers (net) | 2.5 | 4.7 | 15.0 | 13.2 | 21.1 | 15.9 | 12.3 | 20.6 | 31.4 |
| Government Transfers (net) | 6.6 | 4.1 | 6.9 | 5.8 | 7.5 | 9.2 | 12.7 | 15.1 | 33.8 |
| Current Balance | 1.3 | -13.7 | 1.7 | 3.4 | 6.0 | -1.4 | -22.9 | -27.7 | -14.1 |
| Long-Term Capital | | | | | | | | | |
| Direct Investment | | | 2.8 | 3.4 | 4.0 | 7.2 | 7.9 | 2.7 | 5.0 |
| Other Government | 2.4 | 6.5 | -0.8 | -1.8 | 6.3 | -3.3 | -5.1 | 18.7 | 24.9 |
| Other | | | 0.8 | 2.6 | 0.8 | 3.2 | 6.3 | 3.2 | 1.0 |
| Short-Term Capital | | | -2.3 | -3.9 | -1.4 | 0.1 | 10.2 | -3.6 | -7.4 |
| Errors and Omissions | -1.2 | 5.2 | -0.9 | 1.7 | -8.5 | -4.6 | -7.2 | -5.9 | 2.0 |
| Allocation of SDRs | - | - | 2.5 | 2.0 | 2.2 | - | - | - | - |
| Balance before Financing | 2.5 | -2.0 | 3.8 | 7.4 | 9.3 | 1.1 | -10.7 | -12.7 | 11.4 |
| Reserves and Related Items (Increase -) | -2.5 | 2.0 | -3.8 | -7.4 | -9.3 | -1.1 | 10.7 | 12.7 | -11.4 |

Source: IMF, International Financial Statistics.

The current account balance has shown a surplus in some years, as the merchandise trade deficit and heavy imports of services have been more than offset by receipts from tourism and transfers. Deficits in the current account have usually been relatively small. Until 1975 net long-term capital movements were not very large; neither were the absolute changes from year to year. The sharp increases in the long-term capital balance in 1975 and 1976 were due entirely to increased lending by international agencies; direct investment actually declined in these years from its 1973-74 level. Balance-of-payments surpluses were recorded in 1970-73, but deficits averaging US$12 million were experienced in 1974 and 1975. Increased coffee prices and higher levels of grant assistance were largely responsible for 1976's surplus of US$11.4 million.

## B. DEMOGRAPHIC TRENDS

Haiti has conducted two population censuses, one in 1950 and the second in 1971. In addition to demographic data (including labor force and migration statistics) the censuses also provide information on housing and agriculture.

Data from the 1950 census were published in 5 volumes, one for each of the country's traditional Departments (Haiti, IHS, 1955), whose boundaries are indicated in Map 1.1. Much of the demographic data

Map 1.1

Haiti: Political Subdivisions (5 Traditional Departments)




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is available at both the arrondissement and commune level. The quality of these data is questionable:

> The participating officials lacked training and experience, and many of the persons enumerated lacked fixed places of residence. Women, in particular, tended to disguise their ages in the belief that certain ages were luckier than others, and some men were believed to have avoided enumeration in order to escape military service. Perhaps more important, there was a general suspicion of visiting strangers asking questions. The total number reported in 1950 (3,097,220) was later calculated by United Nations demographers to have represented an underenumeration of 8.3 percent; other estimates of the magnitude of the shortfall reached as high as 30 percent (Weil 1973:17).

Comments like these can be made for most censuses in developing countries, and the Haitian census of 1950 probably does not differ much from the norm. Still, it is good to bear in mind the possible underestimation of the population, for this has important implications for income and employment. As we shall see below, there is also reason to be concerned about the reliability of other data from the 1950 census.

The 1971 census was actually a census only in urban centers and a 10 percent sample survey in rural areas. The total population figure was calculated to be 4,314,628, considerably less than the 4,968,000 that had been projected. The implied population growth rate was thus only 1.6 percent (rather than 2.3 percent), well below the Latin American average of 2.8 percent. The modest rate of population growth indicated by the census is attributable both to a relatively low reported birth rate (35.0, compared with a death rate of 15.0) [4/] and to a high rate of external migration (estimated to be about 0.4 percent). Some observers, however, believe

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4/ These are estimates for 1973, as reported by the Institut Haitien de Statistique to the IDB in December 1975 (IDB [1976]: 254-255).

that the birth rate is underestimated and maintain that the actual population in 1971 was 10-20 percent higher than the census figure (USDHEW 1976:1; Weil 1973:17).

The 1950 census showed that 87.8 percent of Haiti's population lived in rural areas. In 1971 the figure was reported to be 79.6 percent. 5/ Actually, the rural percentage was even higher, since the "urban" population included the chief towns in each commune (i.e. the county seats) as well as other communities of similar size. Many of these had fewer than 2,000 inhabitants, and if we transfer their total population (about 81,000) to the rural category--where normally they would be placed--the rural population in 1971 would rise to 81.5 percent of the total.

Urban and rural population figures by arrondissement are shown in Table 1.7. For the nation as a whole, the urban population increased by 4.1 percent annually between the two censuses. It is important, however, to distinguish between Port-au-Prince and other urban areas. In the arrondissement of Port-au-Prince, the urban growth rate was 5.9 percent, much faster than the 2.4 percent annual increase for all other urban areas. The rural population grew by 1.1 percent annually, with very little difference among the 5 Departments but considerable variation at the arrondissement level (from minus 0.7 percent in Limbé to 2.6 percent in Plaisance--both of which, interestingly, are located in the North).

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5/ The Latin American average in 1971 was about 42 percent.

Table 1.7

Urban and Rural Population by Arrondisement, 1950 and 1971
(in thousands and percentage change)

| Department and Arrondissement | 1950[a] | | | 1971 | | | Percentage Change | | |
|---|---|---|---|---|---|---|---|---|---|
| | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| Northwest | 13.5 | 154.7 | 168.3 | 26.1 | 190.4 | 216.5 | 93.3 | 23.1 | 28.6 |
| Port-de-Paix | 10.8 | 105.0 | 115.8 | 21.7 | 114.7 | 136.4 | 101.0 | 9.2 | 17.8 |
| Môle St.-Nicolas | 2.7 | 49.8 | 52.5 | 4.4 | 75.7 | 80.1 | 63.7 | 52.0 | 52.6 |
| North | 74.9 | 465.0 | 539.0 | 117.8 | 582.0 | 699.9 | 57.3 | 25.2 | 29.9 |
| Cap-Haitien | 29.4 | 88.8 | 118.2 | 54.7 | 145.1 | 199.8 | 86.0 | 63.4 | 69.0 |
| Trou-du-Nord | 11.9 | 40.4 | 52.3 | 14.4 | 54.9 | 69.3 | 20.7 | 36.1 | 32.5 |
| Grande-Riv.-du-Nord | 9.3 | 97.1 | 106.5 | 16.1 | 84.3 | 100.4 | 72.8 | -13.2 | -5.7 |
| Vallières | 1.9 | 41.4 | 43.3 | 3.5 | 44.3 | 47.9 | 87.5 | 7.0 | 10.6 |
| Fort Liberté | 12.2 | 52.2 | 64.4 | 12.9 | 56.0 | 68.9 | 5.8 | 7.3 | 7.0 |
| Plaisance | 3.0 | 54.3 | 57.2 | 4.0 | 92.8 | 96.8 | 35.1 | 70.9 | 69.2 |
| Limbé | 3.9 | 35.7 | 39.6 | 6.5 | 30.0 | 36.5 | 66.3 | -15.8 | -7.8 |
| Borgne | 3.3 | 54.3 | 57.6 | 5.7 | 74.5 | 80.3 | 71.8 | 37.3 | 39.4 |
| Artibonite | 48.9 | 518.3 | 567.2 | 90.6 | 665.3 | 755.9 | 85.3 | 28.4 | 33.3 |
| Gonaives | 17.9 | 147.9 | 165.7 | 36.7 | 150.1 | 186.7 | 105.7 | 1.5 | 12.7 |
| St.-Marc | 11.4 | 85.2 | 96.6 | 20.5 | 127.0 | 147.6 | 80.3 | 49.0 | 52.8 |
| Marmelade | 3.1 | 72.3 | 75.4 | 5.8 | 107.6 | 113.3 | 85.7 | 48.8 | 50.3 |
| Hinche | 7.6 | 96.7 | 104.3 | 14.2 | 119.3 | 133.5 | 86.6 | 23.4 | 28.0 |
| Dessalines | 8.9 | 111.2 | 120.1 | 13.3 | 161.3 | 174.6 | 49.1 | 45.1 | 45.4 |
| West | 185.0 | 897.9 | 1,083.1 | 555.2 | 1,114.5 | 1,669.7 | 200.1 | 24.1 | 54.2 |
| Port-au-Prince | 151.9 | 261.9 | 413.8 | 506.5 | 370.8 | 877.3 | 233.4 | 41.6 | 112.0 |
| Léogane | 10.8 | 200.1 | 211.0 | 16.7 | 257.8 | 274.5 | 54.1 | 28.8 | 30.1 |
| Jacmel | 12.5 | 233.2 | 245.7 | 16.4 | 282.6 | 299.1 | 31.8 | 21.2 | 21.7 |
| Belle-Anse | 2.2 | 54.7 | 56.9 | 3.0 | 49.2 | 52.2 | 39.0 | -10.1 | -8.3 |
| Mirebalais | 4.2 | 110.0 | 114.1 | 7.1 | 119.4 | 126.5 | 69.6 | 8.6 | 10.9 |
| Lascahobas | 3.4 | 38.2 | 41.6 | 5.3 | 34.8 | 40.1 | 57.0 | - 8.9 | -3.6 |
| South | 56.5 | 684.0 | 739.6 | 90.0 | 882.7 | 972.8 | 59.3 | 29.0 | 31.5 |
| Les Cayes | 15.8 | 179.4 | 195.2 | 27.2 | 245.4 | 272.7 | 72.1 | 36.8 | 39.7 |
| Aguin | 5.7 | 118.2 | 123.9 | 5.3 | 155.4 | 160.6 | -8.1 | 31.5 | 29.6 |
| Coteau | 7.7 | 48.5 | 56.2 | 9.7 | 76.7 | 86.4 | 25.9 | 58.0 | 53.7 |
| Grand - Anse | 15.7 | 159.6 | 175.4 | 25.1 | 215.7 | 240.9 | 59.8 | 35.1 | 37.3 |
| Tiburon | 5.5 | 41.5 | 47.1 | 13.0 | 48.9 | 61.9 | 135.3 | 17.8 | 31.4 |
| Nippes | 6.0 | 135.8 | 141.8 | 9.7 | 140.6 | 150.3 | 62.1 | 3.5 | 6.0 |
| NATIONAL TOTAL | 378.8 | 2,713.3 | 3,092.1 | 879.7 | 3,434.9 | 4,314.6 | 132.2 | 26.6 | 39.5 |

Sources: Haiti, IHS (1973:32-33).

[a]These figures differ from those initially reported for 1950, but only to a minor degree. The national total reported here is only 5,080 less than the original figure, and there are no major changes in the urban-rural breakdown of the population.

## C. AGRICULTURE'S IMPORTANCE IN THE ECONOMY

Agriculture is still by far the largest sector of the economy, even though its share of the GDP fell from 50 percent in 1960 to 44 percent in 1976 (see Table 1.8). In constant (1955) prices the value of sector output in 1976 was only 16 percent higher than in 1960. The value of *per capita* agricultural product fell during this period by 10 percent, or 0.6 percent a year.

A decomposition of the gross agricultural product shows that the decline in per capita production occurred mainly in export products, and to a lesser extent in industrial products, rather than in commodities destined for human or livestock consumption: 6/

Indices of Sub-Sector Product (1959-61 = 100)

| Period | Human and Live-stock Consumption | Industrial Products | Export Products |
|---|---|---|---|
| 1959-61 | 100.0 | 100.0 | 100.0 |
| 1965-67 | 109.6 | 100.7 | 92.3 |
| 1971-73 | 120.7 | 100.2 | 82.2 |

However, as explained above, the data for domestic-consumption commodities are particularly suspect because they assume that output increases steadily at the same rate as the population. Most likely, per capita production in this sub-sector has been declining.

The share of export crops in total sector output fell from 14.4 percent in 1960-62 to 10.6 percent in 1970-72, while that of industrial products declined from 4.8 percent to 4.1 percent. Domestic consumption crops, which had accounted for 80.8 percent of total sector output in 1960-62,

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6/ Haiti, IHS (1974). The last period for the export-products data is 1970-72.

Table 1.8

Agriculture's Contribution to the Gross Domestic Product, 1960-1976

| | Gross Agricultural Product (millions of 1955 gourdes) | Total GDP | Agriculture's share of the GDP (percent) | Indices (1960 = 100) Gross Agricultural Product | Per Capita Agricultural Product |
|---|---|---|---|---|---|
| 1960 | 758.1 | 1,522.7 | 49.8 | 100.0 | 100.0 |
| 1961 | 742.2 | 1,478.0 | 50.2 | 97.9 | 96.4 |
| 1962 | 783.0 | 1,594.6 | 49.1 | 103.3 | 100.2 |
| 1963 | 776.2 | 1,564.4 | 49.6 | 102.4 | 97.8 |
| 1964 | 766.7 | 1,538.7 | 49.8 | 101.1 | 95.1 |
| 1965 | 775.7 | 1,572.0 | 49.3 | 102.3 | 94.8 |
| 1966 | 794.5 | 1,562.8 | 50.8 | 104.8 | 95.6 |
| 1967 | 774.8 | 1,529.8 | 50.6 | 102.2 | 91.8 |
| 1968 | 793.3 | 1,578.5 | 50.3 | 104.6 | 92.5 |
| 1969 | 804.1 | 1,638.6 | 49.1 | 106.1 | 92.4 |
| 1970 | 806.4 | 1,649.3 | 48.9 | 106.4 | 91.0 |
| 1971 | 837.9 | 1,756.2 | 47.7 | 110.5 | 92.8 |
| 1972 | 832.1 | 1,772.6 | 46.9 | 109.8 | 91.1 |
| 1973 | 845.9 | 1,826.2 | 46.3 | 111.6 | 91.1 |
| 1974 | 853.9 | 1,887.7 | 45.2 | 112.6 | 90.4 |
| 1975 | 856.3 | 1,912.3 | 44.8 | 113.0 | 89.3 |
| 1976 | 880.0 | 1,993.8 | 44.1 | 116.1 | 90.1 |

Source: IHS and IDB estimates.

contributed 85.3 percent of the total in 1970-72. Again, however, an increase of this magnitude is questionable. Still, it is probable that rising population, combined with the lack of availability of new land and declining fertility on existing plots, induced a shift out of export and industrial commodities and into foodstuffs for domestic consumption.

## D. AGRICULTURAL EXPORTS AND IMPORTS

Coffee continues to be Haiti's principal export, but its share of commodity export earnings declined from 48 percent in 1960-62 to 32 percent in 1974-76 (see Table 1.9). The annual volume of coffee exports over this period fell from 25,800 metric tons (MT) to 21,300 MT. Because of rising prices, however, annual export earnings in current prices rose from US$17.7 million to US$29.6 million. Sharply higher prices in 1977 resulted in foreign exchange earnings of US$64.7 million in that year, despite a drop in export volume to 15,900 MT. Increased domestic demand has cut into the export surplus, but perhaps the major reason for the poor performance of this commodity has been an export tax structure that has acted as a significant disincentive to production. 7/

Ranking well below coffee in importance are sugar, sisal, and essential oils, which together account for annual exports of about US$13 million. The volume of sugar exports fell from 30,200 MT during 1960-62 to 17,000 MT during 1974-76. Sugar was imported in 1977, as unfavorable price trends discouraged production. Prices have long been unfavorable for sisal (La Gra 1971), and export volume during 1974-76 was less than 40 percent of the 1960-62 figure. Only for essential oils have export trends been favorable, and these processed agricultural products now contribute US$5-6 million annually in foreign exchange earnings.

Minor agricultural exports include cocoa, cotton, fish and seafood, goatskins, meat, molasses, and orange peel. Except for meat, annual exports of these commodities have averaged less than US $1 million in recent years.

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7/ This will be discussed in Chapter 6.A below. For a detailed analysis, see Tanzi (1976).

Table 1.9

Value and Volume of Principal Agricultural Exports
(Raw and Processed), 1960-1976

| | Export Value (millions of U.S. dollars) | | | | Export Volume (thousands of metric tons) | | | |
|---|---|---|---|---|---|---|---|---|
| | Coffee | Sugar | Sisal | Essential Oils | Coffee | Sugar | Sisal | Essential Oils |
| 1960 | 20.2 | 3.9 | 4.5 | | 28.2 | 33.1 | 24.3 | |
| 1961 | 12.1 | 4.5 | 3.4 | | 16.7 | 40.7 | 19.3 | |
| 1962 | 20.7 | 1.7 | 2.3 | | 32.6 | 16.8 | 13.3 | |
| 1963 | 16.8 | 5.2 | 3.8 | | 26.4 | 49.1 | 18.6 | |
| 1964 | 17.5 | 2.0 | 3.8 | | 22.4 | 14.7 | 17.5 | |
| 1965 | 19.3 | 2.4 | 2.4 | | 22.7 | 23.1 | 14.1 | |
| 1966 | 20.7 | 2.8 | 2.8 | | 24.4 | 29.0 | 17.7 | |
| 1967 | 13.7 | 3.8 | 1.4 | | 16.9 | 30.7 | 12.1 | |
| 1968 | 14.6 | 3.1 | 1.6 | 2.7 | 19.5 | 24.4 | 14.5 | .342 |
| 1969 | 13.7 | 2.1 | 2.5 | 3.0 | 18.6 | 22.9 | 20.5 | .306 |
| 1970 | 15.2 | 2.5 | 1.8 | 2.5 | 16.1 | 18.0 | 16.6 | .206 |
| 1971 | 18.8 | 3.4 | 0.8 | 3.1 | 21.5 | 22.9 | 8.3 | .382 |
| 1972 | 15.7 | 3.6 | 0.6 | 3.3 | 18.6 | 20.7 | 4.1 | .316 |
| 1973 | 20.6 | 2.8 | 1.2 | 3.6 | 19.4 | 13.7 | 6.5 | .329 |
| 1974 | 23.8 | 0.9 | 3.0 | 6.5 | 18.7 | 5.6 | 9.4 | .391 |
| 1975 | 18.5 | 9.6 | 3.2 | 4.9 | 17.8 | 25.4 | 5.6 | .226 |
| 1976 | 46.5 | 3.0 | 3.4 | 5.1 | 27.5 | 20.0 | 6.0 | .350 |

Source: Haiti, IHS (1977) and IDB estimates.

Food imports have increased sharply during the 1970s, reflecting sluggish domestic production in the face of rapidly rising urban incomes. Higher food prices have aggravated foreign exchange outlays for food, which more than doubled--from US$8.1 million to US$20.8 million--between 1970 and 1974. Wheat was the principal item in this category. Imports of beverages, tobacco, and edible oils have also been rising rapidly (see Table 1.10). Likewise, there has been an increase in the importation of agricultural raw materials from an average of US$0.8 million during 1970-72 to US$2.6 million during 1974-76.

Haiti's imports of capital goods for agriculture are still very modest. Capital goods imports did not exceed US$200,000 until 1972.

Table 1.10

Agricultural Imports, 1960-1976

(millions of dollars)

| | Food Products | Beverages and Tobacco | Animal and Vegetable Oils | Raw Materials | Capital Goods |
|---|---|---|---|---|---|
| 1960 | 6.8 | 1.1 | | | - |
| 1961 | 4.8 | 1.1 | | | 0.1 |
| 1962 | 5.8 | 1.1 | | | 0.1 |
| 1963 | 8.1 | 1.1 | | | 0.2 |
| 1964 | 9.3 | 1.1 | | | 0.1 |
| 1965 | 9.2 | 1.2 | | | 0.2 |
| 1966 | 9.2 | 1.0 | | | 0.1 |
| 1967 | 9.1 | 1.4 | | | 0.1 |
| 1968 | 7.3 | 1.1 | | | a |
| 1969 | 10.0 | 1.4 | 2.7 | | 0.1 |
| 1970 | 8.1 | 1.4 | 3.5 | 0.5 | 0.1 |
| 1971 | 10.5 | 1.6 | 5.3 | 1.0 | 0.2 |
| 1972 | 15.5 | 1.3 | 5.3 | 1.0 | 0.3 |
| 1973 | 16.2 | 1.3 | 4.1 | 1.2 | 0.2 |
| 1974 | 20.8 | 2.6 | 8.3 | 2.0 | 0.5 |
| 1975 | 30.7 | 2.6 | 7.9 | 1.8 | 0.5 |
| 1976 | 43.5 | 3.5 | 15.0 | 4.1 | 0.5 |

Source: Haiti, IHS (1977) and Administration Générale des Douanes, Annuaire du commerce exterieur d'Haiti, various issues.

[a]Less than US$50,000.

## E. AGRO-INDUSTRY

Value added by agro-industrial firms increased at a real annual rate of only 0.3 percent between 1960 and 1974, compared with 0.9 percent for other manufacturing activities (see Table 1.11). [8/] Agro-industry now accounts for just over 40 percent of Haiti's manufacturing output, compared with nearly 45 percent in the early 1960s. Production is diversified, with no one industry dominating the statistics. Bread and other grain products contribute the greatest share of value added by firms processing agricultural products. Next, and of roughly equal importance, come sugar refining, other food products, tobacco products, essential oils, and alcoholic beverages. Coffee processing and cotton and sisal textiles are of lesser importance. Total value added by agro-industrial firms, in 1955 prices, was ¢88.4 million (US$17.7 million) in 1974.

The very slow rate of growth of manufacturing activity generally during 1960-74 is attributable primarily to a significant decline in production between 1962 and 1967. Since 1967 total manufacturing output has climbed steadily at a compound annual rate of 5.4 percent. Agro-industrial output has been increasing at a more modest rate of 4.1 percent, slower than the growth of the Port-au-Prince market for which most of this production is destined. Accordingly, imports of processed agricultural products--both legal and contraband--have been rising rapidly.

Among the various branches of agro-industrial activity, food processing has been growing most rapidly (see Table 1.12). Increases have also been

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[8/] Since production fluctuated considerably from year to year, these growth rates were calculated by fitting a trend line to the data ($\log VA_t = a + bt$, where VA = value added and t = time).

Table 1.11

Value Added by Agro-Industrial Firms, 1960-1974

(millions of gourdes, 1955 prices)

| | Coffee Processing | Baking | Sugar Refining | Other Food Products[a] | Essential Oils | Alcoholic Beverages | Tobacco Products | Cotton & Sisal Textiles | (A) Total Agro-Industry | (B) Total Manufacturing | (A)/(B) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 | 7.2 | 10.0 | 14.1 | 4.7 | 2.7 | 9.2 | 6.2 | 12.1 | 66.3 | 154.7 | 42.9 |
| 1961 | 4.2 | 13.3 | 17.0 | 5.4 | 4.2 | 10.1 | 5.8 | 10.0 | 70.0 | 149.3 | 46.9 |
| 1962 | 8.3 | 19.2 | 16.5 | 5.3 | 4.8 | 10.2 | 6.0 | 7.3 | 77.6 | 176.2 | 44.0 |
| 1963 | 6.7 | 19.2 | 16.5 | 5.6 | 3.0 | 10.3 | 5.9 | 9.3 | 76.5 | 173.8 | 44.0 |
| 1964 | 5.7 | 18.5 | 15.2 | 6.0 | 2.9 | 8.4 | 6.0 | 8.8 | 71.5 | 155.5 | 46.0 |
| 1965 | 5.8 | 21.2 | 15.0 | 7.2 | 4.2 | 8.9 | 6.2 | 7.3 | 75.8 | 161.5 | 46.9 |
| 1966 | 6.2 | 16.7 | 14.0 | 7.8 | 6.1 | 8.6 | 6.2 | 9.1 | 74.7 | 153.3 | 48.7 |
| 1967 | 4.3 | 15.4 | 13.1 | 6.7 | 7.3 | 7.4 | 6.3 | 6.4 | 66.9 | 149.7 | 44.7 |
| 1968 | 5.0 | 16.0 | 12.5 | 6.8 | 8.7 | 7.8 | 6.3 | 7.7 | 70.8 | 156.5 | 45.2 |
| 1969 | 4.7 | 17.0 | 17.5 | 6.8 | 7.7 | 7.2 | 6.0 | 10.3 | 77.2 | 161.3 | 47.9 |
| 1970 | 4.1 | 13.4 | 10.0 | 7.2 | 5.2 | 7.8 | 7.3 | 8.4 | 64.3 | 163.8 | 38.7 |
| 1971 | 5.5 | 15.3 | 12.6 | 8.7 | 7.6 | 7.9 | 8.6 | 4.8 | 71.0 | 173.6 | 40.9 |
| 1972 | 4.8 | 16.9 | 14.1 | 15.9 | 8.0 | 8.2 | 7.7 | 2.8 | 78.4 | 188.7 | 41.5 |
| 1973 | 5.0 | 21.3 | 12.9 | 11.4 | 8.5 | 8.1 | 8.3 | 3.9 | 79.4 | 196.6 | 40.4 |
| 1974 | 4.8 | 23.9 | 11.2 | 12.0 | 10.0 | 8.9 | 11.1 | 6.5 | 88.4 | 215.8 | 41.0 |

Source: Haiti, IHS (1977: 347-354).

[a]Edible oils, lard, molasses, and rapadou.

Table 1.12

Index of Industrial Production, 1960-1975

(1955 = 100)

| | Total Production | Food Products | Beverages | Tobacco | Textiles |
|---|---|---|---|---|---|
| 1960 | 99.0 | 102.1 | 75.6 | 114.5 | 94.6 |
| 1961 | 95.5 | 112.1 | 78.5 | 107.7 | 84.5 |
| 1962 | 112.7 | 144.1 | 73.1 | 110.6 | 79.0 |
| 1963 | 111.2 | 139.1 | 78.8 | 109.8 | 80.7 |
| 1964 | 99.5 | 126.4 | 73.9 | 97.8 | 81.0 |
| 1965 | 103.3 | 138.3 | 76.3 | 100.0 | 74.9 |
| 1966 | 98.1 | 123.4 | 78.5 | 100.7 | 91.2 |
| 1967 | 95.8 | 115.3 | 67.7 | 101.4 | 94.1 |
| 1968 | 100.1 | 132.0 | 68.3 | 102.2 | 75.9 |
| 1969 | 103.2 | 133.1 | 83.4 | 97.2 | 82.2 |
| 1970 | 104.8 | 119.7 | 94.6 | 119.6 | 92.3 |
| 1971 | 111.1 | 133.9 | 99.9 | 138.6 | 85.7 |
| 1972 | 120.7 | 168.0 | 106.9 | 125.5 | 65.7 |
| 1973 | 125.8 | 238.8 | n.a. | 135.3 | 47.9 |
| 1974 | 138.1 | 223.3 | n.a. | 179.1 | 58.2 |
| 1975 | n.a. | 235.8 | n.a. | 187.9 | 35.1 |

Source: Haiti, IHS (1977: 138-139).

registered since the late 1960s in beverages and tobacco. Textile production, however, has fallen sharply, reflecting the downward trends in cotton and sisal production.

There are few domestic firms producing inputs for the agricultural sector. All chemical fertilizers, and most machinery, equipment, and implements, are imported.

## F. MEETING NUTRITIONAL REQUIREMENTS

Nutrition data are weak, but it is clear that malnutrition in Haiti is widespread. An examination of estimates from various nutrition studies conducted in the 1950s and 1960s (see Chapter 3.G.3) suggests that per capita consumption of calories is about 1,700 daily. This is 23 percent below the revised FAO standard of 2,214 calories. Estimates of protein consumption vary widely, but on balance they seem to approximate the lower FAO standard (43 grams) adopted during the early 1960s. However, there is evidence that this standard may have been set too low, in which case average protein consumption would have to be considered sub-standard. Moreover, it must be remembered that both the 1,700 calorie and the 43-gram figures are averages, and a large but unknown proportion of the population does not even consume these low amounts. A seasonal deficiency of vitamin A is among the other nutritional problems faced by the Haitian population.

Nutrition estimates may also be made by translating food availability data (domestic production, net of exports, plus imports) into calories and proteins. The FAO's estimates for 1961-65 and 1972-74 are as follows:

| | 1961-65 | 1972-74 |
|---|---|---|
| Available calories | | |
| Total | 1,974 | 2,028 |
| Vegetable | 1,851 | 1,902 |
| Animal | 123 | 126 |
| Proteins | | |
| Total | 47.0 | 48.8 |
| Vegetable | 40.8 | 41.8 |
| Animal | 6.2 | 7.0 |

Both the calorie and protein figures are higher than the averages estimated in the nutritional studies noted above. However, food consumption is less than food availability because of spoilage and other losses. Moreover, the very slight suggested improvement in nutritional levels may be questioned

because, as noted earlier in this chapter, production increases are probably overestimated. Many observers believe that nutritional levels have in fact been declining.

## G. EMPLOYMENT AND PRODUCTIVITY

A very high percentage of the Haitian population was reported as economically active in both 1950 (55.0 percent) and 1971 (54.4 percent). The 1971 figure, however, includes children in the 5-9 and 10-14 age groups. Excluding these groups, to make the 1971 figure comparable with that of 1950, the overall participation rate is a still-high 47.3 percent. If we take only the adult (15+) population as the denominator, the participation rates rise to 88.6 percent and 79.3 percent, respectively. Table 1.13 shows participation rates by age group for 1950 and 1971, and also by sex for 1971, while Table 1.14 shows absolute numbers of persons in the economically active population by age, sex, and employment status.

Another estimate of the participation rate is that found in the 1970 socioeconomic survey (Haiti, IHS, 1975b), which shows that 77.7 percent of all persons 14 years and over were economically active. Adjusted for the 14-year olds, this figure is very close to the 1971 [9/] census figure.

These very high rates, of course, are attributable to the fact that most women are considered--correctly, in our view--to be in the economically active population. In many Central and South American countries, by contrast, participation rates for women are reported to be 20-25 percent.

The reported decline in the overall participation rate between 1950 and 1971 is a significant one. The rates fall for both men and women, and the decline is particularly sharp in the 15-19 age group. To what extent these figures reflect actual changes, and to what extent they are

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[9/] The participation rates for men and women were 87.9 percent and 68.4 percent, respectively.

Table 1.13

Participation Rates of the Economically Active Population, 15+, by Age Group, 1950 and 1971 (percent)

| | 1950 | | | 1971 | | |
|---|---|---|---|---|---|---|
| Age Group | Male[a] | Female[a] | Total | Male | Female | Total |
| 15-19 | | | 82.4 | 65.3 | 63.9 | 64.2 |
| 20-24 | | | 90.3 | 89.3 | 74.7 | 81.4 |
| 25-29 | | | 91.2 | 97.5 | 74.0 | 84.5 |
| 30-34 | | | 91.5 | 98.8 | 73.4 | 84.7 |
| 35-39 | | | 92.3 | 99.2 | 74.7 | 85.7 |
| 40-44 | | | 93.1 | 99.0 | 76.8 | 87.8 |
| 45-49 | | | 93.1 | 98.7 | 76.8 | 88.0 |
| 50-54 | | | 91.9 | 98.1 | 76.6 | 87.7 |
| 55-59 | | | 90.5 | 97.5 | 75.1 | 86.4 |
| 60-64 | | | 87.9 | 95.4 | 69.3 | 81.8 |
| 65+ | | | 71.5 | 81.6 | 44.8 | 60.3 |
| 15+ | 96.3[a] | 81.8[a] | 88.6 | 89.5 | 70.3 | 79.3 |

Source: ILO (1976:46-47), based on 1950 and 1971 census results.

[a]Not indicated in the source. However, total employment by sex is indicated for those 14 and over, and the total very closely approximates that for the economically active population (employed and unemployed) 15 and over. If we use the 14+ employment data, and further assume that the ratio of females to males (15+) was the same in 1950 as in 1971, the overall participation rates, by sex, can be estimated.

Table 1.14

Economically Active Population, by Age, Sex, and Employment Status, 1971
(thousands)

| Age Group | Total Population | | | Economically Active Population | | | Employed Population | | | Total Unemployment |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total | |
| 0- 4 | 273.1 | 275.0 | 548.1 | - | - | - | - | - | - | - |
| 5- 9 | 295.5 | 300.4 | 595.9 | 30.8 | 32.1 | 62.9 | 29.8 | 31.2 | 61.0 | 1.9 |
| 10-14 | 295.8 | 290.4 | 586.2 | 122.5 | 120.0 | 242.5 | 85.5 | 82.7 | 168.3 | 74.2 |
| 15-19 | 230.8 | 244.5 | 475.4 | 150.8 | 156.2 | 305.0 | 119.2 | 108.8 | 228.0 | 77.1 |
| 20-24 | 159.3 | 187.9 | 347.2 | 142.3 | 140.4 | 282.8 | 119.3 | 103.4 | 222.7 | 60.0 |
| 25-29 | 135.2 | 167.6 | 302.8 | 131.8 | 124.0 | 255.9 | 118.7 | 104.3 | 223.0 | 32.9 |
| 30-34 | 106.1 | 132.3 | 238.4 | 104.8 | 97.1 | 201.9 | 97.1 | 86.7 | 183.8 | 18.1 |
| 35-39 | 120.7 | 146.4 | 267.1 | 119.7 | 109.3 | 229.0 | 113.2 | 100.9 | 214.1 | 14.9 |
| 40-44 | 106.5 | 107.2 | 213.7 | 105.4 | 82.3 | 187.7 | 99.9 | 76.4 | 176.3 | 11.4 |
| 45-49 | 95.5 | 91.3 | 186.8 | 94.3 | 70.1 | 164.4 | 90.1 | 65.4 | 155.5 | 8.9 |
| 50-54 | 69.7 | 65.8 | 135.4 | 68.4 | 50.4 | 118.8 | 65.3 | 46.4 | 111.8 | 7.1 |
| 55-59 | 48.0 | 46.5 | 94.5 | 46.8 | 34.9 | 81.7 | 44.7 | 31.7 | 76.4 | 5.3 |
| 60-64 | 45.3 | 48.9 | 94.3 | 43.2 | 33.9 | 77.1 | 41.1 | 30.6 | 71.8 | 5.3 |
| 65+ | 84.1 | 110.6 | 195.6 | 68.6 | 49.5 | 118.1 | 66.4 | 45.6 | 112.0 | 6.1 |
| Total | 2,066.6 | 2,214.9 | 4,281.5 | 1,229.4 | 1,100.2 | 2,329.6 | 1,090.4 | 914.3 | 2,004.6 | 325.0 |
| Total, 15+ | 1,202.2 | 1,349.1 | 2,551.3 | 1,076.1 | 948.1 | 2,024.2 | 975.1 | 800.4 | 1,775.3 | 248.9 |

Source: ILO (1976:46), based on 1971 census data.

due to statistical problems, it is difficult to say. Only a small part of the drop for the 15-19 age group can be attributed to increased secondary school enrollment, which remains very low. The census data, as we have already indicated, have serious deficiencies.

The 1950 census showed that 85.3 percent of the employed population (14+) worked in the agricultural sector, while an occupational breakdown showed 85.7 percent to be farmers, farmworkers, hunters and fishers, etc. For 1971 the respective figures (this time for those 10 years and older) were 73.3 percent and 72.9 percent. These are the highest in Latin America and the Caribbean. 10/ The fact that only 27 percent of the working population is available to produce non-agricultural goods and services constitutes a good indicator of Haiti's very low degree of development.

Table 1.15 provides data on labor productivity in the various sectors of the economy, based on census and national accounts data for 1971. Output per employed worker in agriculture was ₵585 (US$117) in 1955 prices, only one-third of productivity in the rest of the economy. Since 1971 this productivity gap--and most likely the income gap as well--has widened.

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10/ They may be even higher than reported. The ILO (1976:7) notes that, because of definitional problems, some agricultural workers may have been classified as non-agricultural.

Table 1.15

Labor Productivity, by Sector, 1971

| Sector | GDP (millions of 1955 gourdes) | Employment (thousands) | Output per Worker (gourdes) | Productivity Index (Total GDP = 1.00) |
|---|---|---|---|---|
| Agriculture | 837.9 | 1,433.2 | 585 | 0.65 |
| Mining | 33.7 | 1.0 | 33,700 | 37.49 |
| Manufacturing | 173.6 | 120.3 | 1,433 | 1.59 |
| Construction | 42.5 | 17.9 | 2,374 | 2.64 |
| Public Utilities | 25.3 | 1.4 | 18,071 | 20.10 |
| Transportation and Communications | 43.6 | 11.9 | 3,664 | 4.08 |
| Commerce | 181.8 | 194.8 | 933 | 1.04 |
| Banking, Insurance | 8.1 | 2.4 | 3,375 | 3.75 |
| Real Estate | 159.8 | - | - | |
| Government | 134.4 | 160.9 | 1,553 | 1.73 |
| Personal Services | 115.5 | | | |
| Other | - | 10.3 | - | |
| Total | 1,756.2 | 1,954.2 | 899 | 1.00 |

Source: Haiti, IHS (1977).

## H. INCOME DISTRIBUTION

Extremes of considerable wealth and grinding poverty are clearly visible in Port-au-Prince; but on the whole the distribution of income in Haiti does not appear to be as concentrated as in most Central and South American countries. Given Haiti's very low level of development, this is not surprising. 11/

Table 1.16 shows statistics on income distribution computed by the World Bank from unpublished data from the socio-economic survey of 1970. These data measure labor income, including earnings from professional and similar services, but they exclude profits, which in Haiti are thought to be of relatively minor importance. Note that the data refer to individuals, not to families. The distribution of family income is likely to be somewhat different, since 1 in 3 rural residents is considered employed, compared with only 1 in 5 in urban areas.

The data in Table 1.16 show that 87 percent of the employed population received less than $240 annually, with a presumed mean for this group of $120. Together, they received 56 percent of measured income in 1970. At the other extreme, 0.3 percent of the population--3,900 persons--had incomes of $5,160 or more annually, accounting for less than 5 percent of total income. Figure 1.1 shows the Lorenz curve based on this distribution (Curve A), which yields a very low Gini coefficient of .32. However, this figure is artificially low because the vast majority of income earners are placed in a single category, and no information is provided on income distribution within that category. If we replace the long straight line

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11/ Historically, income inequality has tended to widen after economic growth begins. Over time, however, the degree of inequality ceases to increase and then begins to decline.

Table 1.16

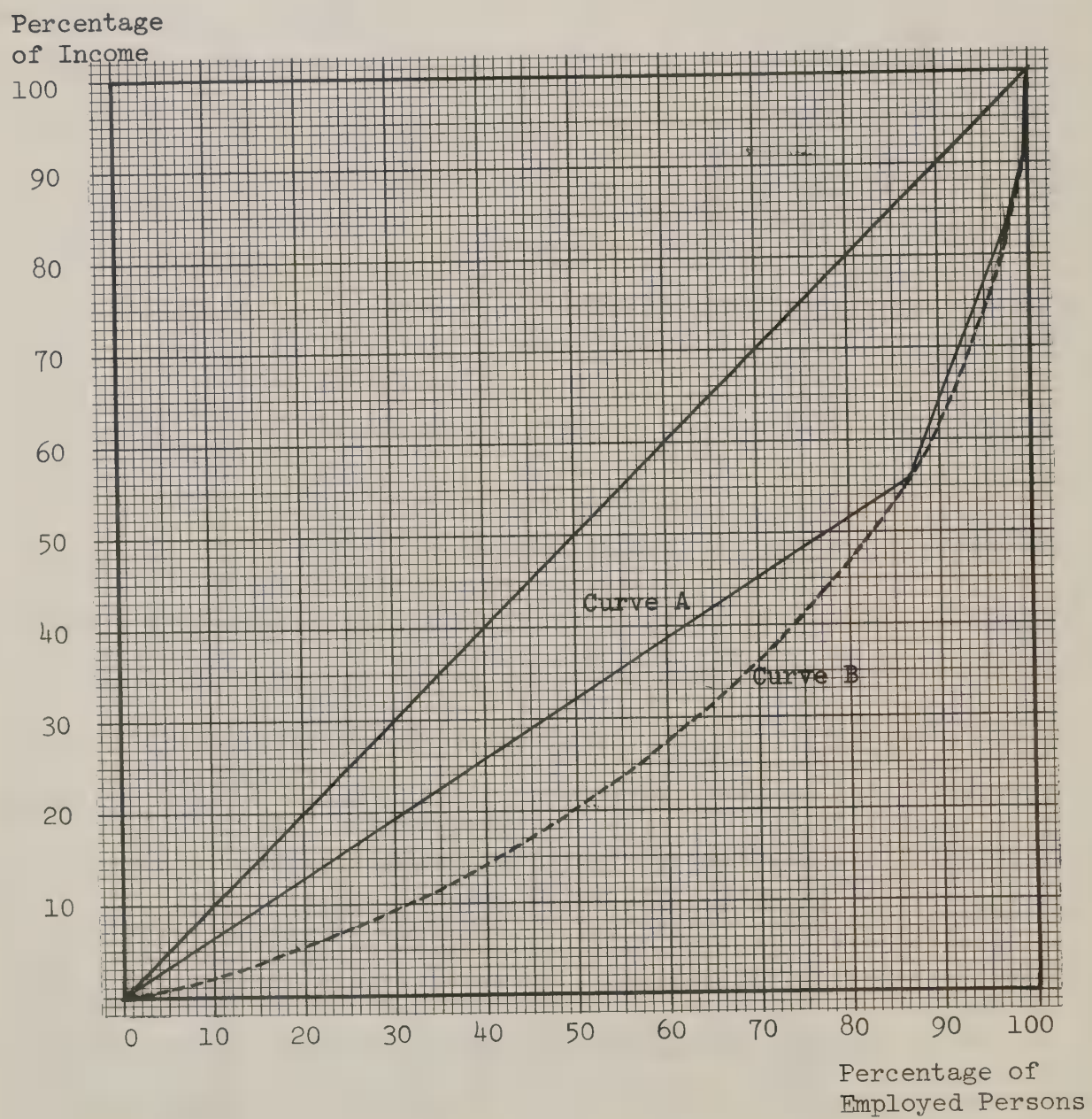
Income Distribution for the Employed Population, 1970[a]
(U. S. dollars; percent)

| Income Category | Average for Category | National Total | | Rural Areas | | All Urban Areas | | Port-au-Prince | |
|---|---|---|---|---|---|---|---|---|---|
| | | Percent Employed | Percent of Income | Percent Employed | Percent of Income | Percent Employed | Percent of Income | Percent Employed | Percent of Income |
| Less than 240 | 120 | 86.9 | 55.8 | 92.0 | 72.1 | 58.0 | 18.4 | 53.8 | 14.8 |
| 240 - 720 | 480 | 10.9 | 28.0 | 7.4 | 23.3 | 30.6 | 38.8 | 31.6 | 34.6 |
| 720 - 1,200 | 960 | 1.3 | 6.9 | 0.4 | 2.3 | 6.9 | 17.5 | 8.2 | 18.1 |
| 1,200 - 1,680 | 1,440 | 0.4 | 2.9 | 0.1 | 0.7 | 2.1 | 8.0 | 2.6 | 8.6 |
| 1,680 - 2,160 | 1,920 | 0.2 | 1.6 | 0.0 | 0.5 | 0.8 | 4.2 | 1.3 | 5.5 |
| 2,160 and above | 3,240 | 0.3 | 4.8 | 0.1 | 1.1 | 1.6 | 13.1 | 2.5 | 18.4 |
| Totals | - | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: IBRD (1976:Vol. II, Table 1.4), based on unpublished data from the 1970 socio-economic survey conducted by the IHS.

Figure 1.1

Income Distribution for the Employed Population, 1970[a]




Source: Table 1.16.

in Figure 1.1 with a curve, the resulting Gini coefficient would be considerably higher. The curve we have drawn, for example (Curve B) yields a Gini coefficient of about .46. 12/

For rural areas, income is less concentrated than in urban centers; but because an even greater percentage of the population (92 percent) is lumped into the lowest income category, the Gini coefficient is even more meaningless than that for the nation as a whole. Moreover, the data in Table 1.16 understate rural income differentials because large farm properties were underreported in the survey. Still, income inequality in rural areas does not seem to be as extreme as in most Latin American countries.

As might be expected, income in urban centers--particularly in Port-au-Prince--is more concentrated than in rural areas. In the metropolitan area of Port-au-Prince, for example, the highest 2.5 percent of income earners was found to receive 18.4 percent of total metropolitan income. The rapid economic growth in the capital since 1970 may well have made income distribution there even more unequal than in 1970.

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12/ This curve is drawn for illustrative purposes only: it is not based on any underlying data, which are not available. Alternative curves, of course, could be drawn, showing either a higher or a somewhat lower degree of concentration. It seems reasonable to conclude, however, that the Gini coefficient is closer to .46 than to .32. A study of 8 Latin American countries by UN-ECLA (1970:6) found Gini coefficients ranging from .48 to .575.

## I. PUBLIC FINANCE

Published data on Haiti's public finances are incomplete, and they do not necessarily reflect accurately trends in overall revenues and expenditures. Moreover, data published by various Haitian government entities show discrepancies for both aggregates and individual line items.

Central government revenues are collected by 4 different entities, whose shares of tax collections in 1974 and 1975 are estimated to have been as follows:[13/]

| | |
|---|---|
| Administration Générale des Douanes (AGD) | 58.7 |
| Administration Générale des Contributions (AGC) | 22.4 |
| Banque Nationale de la République d'Haiti (BNRH) | 4.1 |
| Régie du Tabac et des Alumettes (RTA) | 14.8 |
| Total | 100.0 |

A disturbing trend since 1970 has been a decline in the proportion of central government revenues channeled through the Ministry of Finance's budgetary process, from 52.7 percent during 1970-71 to 43.4 percent during 1975-76 (see Table 1.17). Meanwhile, the share of extrabudgetary revenues, earmarked for some 300-400 special accounts in the BNRH, rose from 33.5 to 42.6 percent. Some of these represent ad hoc taxes or new earmarkings introduced to finance expenditures in the development budget, but the use of other earmarked revenues is not clearly accounted for. The Ministry of Finance has neither supervision nor access to these accounts; as their relative importance has increased, the Ministry's discretionary control over fiscal revenues has thus declined. This has negative consequences for efficient planning, budgeting, and resource allocation.

Also outside the budget are the operations of the RTA, whose financial records are the subject of much uncertainty and speculation. It is believed that the RTA has accounted for a steady 14-15 percent of total

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13/ Excludes revenues of 8 state enterprises and 15 autonomous agencies.

Table 1.17

Central Government Revenues and Expenditures, Fiscal Years 1970-1976[a]

(millions of gourdes, current prices)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|
| Total Revenue | 260.1 | 305.5 | 326.4 | 356.5 | 392.9 | 543.4 | 630.7 |
| Budgetary | 142.6 | 155.7 | 175.3 | 191.4 | 205.7 | 225.0 | 285.2 |
| Fiscal | 116.2 | 126.0 | 141.9 | 158.0 | 169.6 | 185.4 | 235.0 |
| Customs | (61.0) | (67.3) | (67.7) | (73.2) | (81.9) | 90.4 | (120.3) |
| Internal | (51.7) | (55.6) | (68.4) | (81.0) | (83.8) | 92.4 | (118.3) |
| Other | ( 3.4) | ( 3.0) | ( 5.8) | ( 3.7) | ( 3.8) | 2.6 | (-3.6) |
| Earmarked | 26.3 | 29.6 | 31.6 | 33.3 | 36.1 | 39.6 | 50.2 |
| Extrabudgetary | 82.1 | 107.6 | 105.2 | 112.0 | 128.9 | 238.3 | 261.3 |
| Non-fiscal | 0.9 | 1.0 | 0.9 | 1.2 | 1.4 | 1.4 | 0.6 |
| Development budget | 7.9 | 7.7 | 30.4 | 28.3 | 26.5 | 36.8 | 37.1 |
| Special accounts | 56.9 | 76.3 | 55.0 | 63.4 | 82.7 | 177.4 | 180.1 |
| Sinking funds | 13.0 | 17.4 | 14.6 | 15.0 | 14.7 | 12.6 | 15.1 |
| Special transactions | 3.3 | 4.9 | 4.2 | 3.9 | 3.4 | 9.9 | 28.2 |
| Régie du Tabac (RTA) | 35.3 | 42.1 | 47.6 | 53.0 | 58.2 | 80.0 | 84.2 |
| Total Expenditures[b] | 264.1 | 320.7 | 323.9 | 355.3 | 402.7 | 616.3 | 730.8 |
| Surplus (+) or Deficit (-) | -4.0 | -15.2 | 2.5 | 1.2 | -9.8 | -72.9 | -100.1 |

Sources: BNRH; other estimates for the RTA.

[a]Excludes state enterprises and autonomous agencies. Sub-headings may not add to totals or sub-totals because of rounding.

[b]Arbitrarily assumes that RTA expenditures are equal to revenues. Actually, it is likely that the RTA's accounts would show a surplus.

central government revenues in recent years, but the figures reported in Table 1.17 are little more than educated guesses.

The data in Table 1.17 show that central government expenditures more or less kept pace with revenues from 1970 through 1974. Deficits were held to less than 5 percent of expenditures, and small surpluses were recorded in 1972 and 1973.[14/] In 1975 and 1976, however, expenditures rose much faster than revenues, and the deficit in the latter year reached 14 percent of expenditures.

The growth of revenues, nominally 15.9 percent a year between 1970 and 1976, was a modest 2.5 percent annually in real terms (see Table 1.18), resulting in an income elasticity of about 0.8. Real budgetary revenues declined by 0.7 percent annually. Customs revenues channeled through the budget declined slightly in real terms, despite the real growth of exports and, especially, imports (see Table 1.4).[15/] Import taxes as a proportion of the value of taxable imports fell from 32.3 percent in 1970 to 18.9 percent in 1976; current-price data yield an elasticity of import taxes with respect to taxable imports of only about 0.4 during this period. To a large extent this reflects the effects of significantly higher import prices on a tariff structure relying heavily on specific rather than ad valorem duties. Also contributing to stagnant customs revenues was a decline in the proportion of taxable imports from 68.4 percent of

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14/ This assumes that the RTA budget was balanced.

15/ Import duties accounted for more than 75 percent of total customs revenues until 1976, when coffee export tax receipts rose as a result of much higher coffee prices.

Table 1.18

Real Growth of Central Government Revenues, 1970-1976

(millions of gourdes, annual percentage growth rate)

| | Revenues (1970 prices)[a] 1970 | 1976 | Real Annual Growth Rate |
|---|---|---|---|
| Total Revenue | 260.1 | 301.2 | 2.5 |
| Budgetary | 142.6 | 136.2 | -0.7 |
| Extrabudgetary | 82.2 | 124.8 | 7.2 |
| Régie du Tabac | 35.3 | 40.2 | 2.2 |

Source: Table 1.17.

[a]1976 data converted to 1970 prices by using the GDP deflator (see Table 1.3).

the total to 55.1 percent over the same period.[16/] Finally, a deterioration in customs tax administration is believed to have occurred.

Although real customs revenues declined between 1970 and 1976, they still accounted for 52.7 percent of total tax revenues in the latter year, compared with 56.7 percent in 1970 (see Table 1.19). Among internal taxes, whose share of total taxes rose from 43.3 to 47.3 percent, corporate income taxes have become the most important and now account for 40 percent of this revenue category. Excise taxes, the principal internal tax category in 1970, have declined in real terms.

Central government expenditures are channeled through 4 systems of accounts:

1. The Operational Budget, managed by the Ministry of Finance
2. The Development Budget, managed by CONADEP
3. Special accounts managed by the BNRH
4. The accounts of the Régie du Tabac

In addition, the AGD and AGC retain part of the revenues they collect to cover their own administrative expenses.[17/]

The contrast between trends in budgetary and extrabudgetary expenditures is even greater than on the revenue side of the budget. Table 1.20, which excludes the RTA accounts, shows that the share of budgetary expenditures fell from 55.4 percent during 1970-71 to 36.8 percent during 1975-76. Correspondingly, the share of extrabudgetary revenues rose from

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16/ Haiti, AGD, Annuaires du Commerce Extérieur. More detailed research would be needed to determine which sectors of the economy--and which income groups--benefited most from this liberalization of imports.

17/ These amounted to ¢ 9.0 million and ¢ 15.2 million, respectively, in 1975.

Table 1.19

Sources of Tax Revenue, Fiscal Years 1970-1977

(millions of gourdes, current prices)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|---|
| Customs Revenues[a] | 70.81 | 77.90 | 78.49 | 84.80 | 95.26 | 105.24 | 140.14 | 192.73 |
| Coffee Exports | 11.55 | 14.31 | 12.53 | 11.14 | 15.05 | 11.19 | 33.08 | 62.88 |
| Other Exports | | | - | .96 | 1.29 | 9.46 | 1.16 | 1.19 |
| Import Duties | 57.58 | 61.87 | 64.13 | 70.14 | 76.14 | 81.16 | 105.03 | 120.47 |
| Other[b] | 1.68 | 1.72 | 1.83 | 2.56 | 2.78 | 3.43 | 0.87 | 8.19 |
| Internal Revenues[a] | 54.04 | 57.97 | 67.35 | 85.27 | 88.41 | 102.80 | 125.92 | 141.20 |
| Corporate Income Tax | 12.22 | 12.56 | 15.52 | 23.29 | 27.00 | 36.47 | 49.39 | 52.89 |
| Individual Income Tax | 3.43 | 3.24 | 3.48 | 4.29 | 5.78 | 7.92 | 10.13 | 12.28 |
| Excise Taxes | 18.45 | 21.40 | 26.67 | 32.81 | 24.36 | 21.70 | 24.86 | 29.51 |
| Other Internal Taxes | 19.94 | 20.77 | 21.68 | 24.88 | 31.27 | 36.71 | 41.57 | 46.52 |
| Total | 124.85 | 135.87 | 145.84 | 170.07 | 183.67 | 208.04 | 266.06 | 333.93 |

Source: Haiti, Département des Finances.

[a]Gross collections, before deductions. Thus these figures are higher than those in Table 1.17.

[b]Includes storage and wharfing charges.

Table 1.20

Central Government Expenditures, Fiscal Years 1970-1976

(millions of gourdes)

A. Current Prices

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|
| Total | 228.8 | 278.6 | 276.3 | 302.3 | 344.5 | 536.3 | 646.6 |
| Budgetary | 128.9 | 152.3 | 159.8 | 171.8 | 176.8 | 204.3 | 231.7 |
| Extrabudgetary | 99.8 | 126.2 | 116.4 | 130.5 | 167.7 | 332.0 | 414.9 |

B. 1970 Prices

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|---|
| Total | 228.8 | 272.3 | 261.4 | 227.8 | 230.3 | 292.3 | 308.8 |
| Budgetary | 128.9 | 148.9 | 151.2 | 129.5 | 118.2 | 111.3 | 110.6 |
| Extrabudgetary | 99.8 | 123.4 | 110.1 | 98.3 | 112.1 | 180.9 | 198.1 |

Source: BNRH.

44.6 to 63.2 percent. In real terms, budgetary expenditures declined during this period, while extrabudgetary expenditures nearly doubled.

Agriculture's share of the operational and development budgets[18] has been low in view of the importance of this sector in the economy. Spending under the operational budget, which consists overwhelmingly of salaries,[19] has actually been declining in real terms[20] (Table 1.21), and DARNDR's share of total current spending fell from 8.2 percent in 1970 to 5.9 percent in 1976 and less than 5 percent in 1977.[21] Though the number of employees in DARNDR rose from 2,908 to 3,392 over this period, nominal outlays for salaries rose by only 31 percent despite a 116 percent increase in the price level. In real terms, average salaries thus fell by 48 percent. While part of the decline might be explained by the hiring of new staff whose skills and/or experience placed them in positions with salaries below the Ministerial average, it is clear that real salaries fell substantially for those on board at the beginning of the period.

Agriculture is relatively more important in the development budget, which particularly since 1973 has been rising very rapidly through external financing.[22] Between 1970 and 1976 nominal spending for agriculture increased by 612 percent and real spending by 124 percent. Nevertheless,

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18/ This division corresponds roughly to current and capital budgets, but the development budget includes some current expenditures.

19/ Though the relative importance of salaries has declined, salary payments still accounted for 88 percent of the current budget during 1974-76, compared with 95 percent during 1970-72.

20/ Real spending was 33 percent lower in 1977 than in 1970.

21/ Based on preliminary data.

22/ There appears to be double counting of some items--i.e., they are included in both the operational and development budgets.

Table 1.21

Agriculture's Share of the Operational and Development Budgets, 1970-1976

(current prices where data are expressed in gourdes)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|---|
| **A. Operational Budget[a]** | | | | | | | | |
| Total (G million) | 142.5 | 163.3 | 169.1 | 182.5 | 187.9 | 215.2 | 260.9[b] | n.a. |
| DARNDR (G million) | 11.7 | 12.0 | 12.5 | 12.8 | 14.0 | 14.9 | 15.4[b] | 16.9 |
| DARNDR's share of the total (percent) | 8.2 | 7.3 | 7.4 | 7.0 | 7.4 | 6.9 | 5.9 | n.a. |
| Salaries as a percent of DARNDR's budget | 94.7 | 94.8 | 95.1 | 95.3 | 91.3 | 88.7 | 89.0 | 86.7 |
| Number of Employees | 2,908 | 3,022 | 3,126 | 3,165 | 3,204 | 3,275 | 3,300 | 3,392 |
| Average Nominal Salary (G/year) | 3,836 | 3,788 | 3,812 | 3,851 | 3,895 | 4,058 | 4,149 | 4,314 |
| Average Real Salary (1970 G/year)[c] | 3,836 | 3,434 | 3,350 | 2,757 | 2,425 | 2,163 | 2,081 | 1,999 |
| **B. Development Budget** | | | | | | | | |
| Total (G million) | 61.4 | 74.0 | 85.9 | 101.3 | 167.9 | 291.1 | 437.4 | n.a. |
| DARNDR (G million) | 9.1 | 9.9 | 8.1 | 12.1 | 22.4 | 26.7 | 40.8 | n.a. |
| DARNDR's share of total (percent) | 14.8 | 13.3 | 9.4 | 12.0 | 13.4 | 9.2 | 9.3 | n.a. |

Sources: Haiti, Département des Finances (operational budget) and CONADEP (development budget).

[a]Includes rural education.

[b]Preliminary.

[c]Nominal salaries deflated by the consumer price index (Table 1.3).

agriculture's share of the development budget dropped from 14.8 to 9.3 percent, an indication that agriculture has not in fact had as high a priority as government officials sometimes have stated.[23/]

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[23/] By far the most favored sector has been transportation and communications, whose share of the development budget rose from 19.6 percent in 1970 to 54.0 percent in 1976. Much of this spending, it should be noted, does benefit agriculture.

## H. MACROECONOMIC GOALS OF THE 1976-1981 PLAN

Haiti's second 5-year plan, covering fiscal years 1976-81, was legally adopted in August 1976. It is complemented by more detailed annual development budgets which indicate the costs of public-sector investment projects and the proportions to be financed by domestic and foreign resources, respectively. The planning process in Haiti is still quite weak. Coordination between CONADEP and the implementing agencies is weak, and the plan pays relatively little attention to the policy requirements for achieving plan targets.

The targeted annual rate of growth of GDP is 5 percent (about 3.3 percent per capita), compared with 2.6 percent during the first plan period (1971-76). This is an ambitious goal, but one that is feasible given the level of foreign assistance which Haiti is likely to receive during the plan period. It is assumed that the marginal capital-output ratio is 4:1, which requires an investment rate of 20 percent to reach the GDP target. Almost all of the increase in real investment is projected to take place in the public sector.

The plan recognizes unemployment and underemployment to be serious problems, but no employment targets are established. Nor are there income redistribution targets.

# CHAPTER 2

# AGRICULTURAL PRODUCTION TRENDS

## A. TOTAL PRODUCTION INDICES

The FAO and USDA indices of total food and agricultural production in Haiti show significantly different production trends (Table 2.1). The FAO indices, based on FAO estimates and reports by the Département de l'Agriculture, des Ressources Naturelles et de Développement Rural (DARNDR) for approximately 55 crops and livestock products, show that food production increased at an annual rate of 1.9 percent and total agricultural production by 1.6 percent between 1961-65 and 1976. Per capita agricultural production, according to these data, was virtually stagnant, while per capita food production increased by a very slow 0.4 percent annually. DARNDR officials readily admit that they have reasonably good data only for coffee, rice, and sugarcane. For other crops, only rough estimates are made; there is no attempt to measure output systematically through field observations.

The USDA indices show production to be growing both more slowly and more erratically than the FAO estimates. With respect to their 1961-65 base, the food and total agricultural production indices in 1968 were lower by 6 and 11 percent, respectively. The base-period production levels were reached again by the early 1970s, but since then the data show virtually no growth. Per capita food production in 1974-76 was 11 percent lower than in 1961-65, and total agricultural production was 15 percent lower.

There are several reasons for the discrepancies between the USDA and FAO estimates. First, the USDA index is based on weighted average

Table 2.1

FAO and USDA Food and Agricultural Production Indices, 1961-1976

| | FAO Production Indices | | | | USDA Production Indices | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Food | Total Agriculture | Per Capita Food | Per Capita Agriculture | Total Food | Total Agriculture | Per Capita Food (unadjusted) | Per Capita Agriculture[a] | Per Capita Food (adjusted) | Per Capita Agriculture[a] |
| Average, 1961-65 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1966 | 106 | 104 | 101 | 99 | 100 | 94 | 95 | 89 | 95 | 89 |
| 1967 | 108 | 106 | 102 | 99 | 101 | 94 | 94 | 88 | 94 | 88 |
| 1968 | 107 | 104 | 99 | 96 | 94 | 89 | 86 | 82 | 87 | 82 |
| 1969 | 111 | 107 | 102 | 98 | 101 | 94 | 91 | 85 | 92 | 86 |
| 1970 | 113 | 110 | 102 | 99 | 102 | 99 | 91 | 87 | 92 | 89 |
| 1971 | 116 | 112 | 103 | 100 | 107 | 100 | 94 | 87 | 95 | 89 |
| 1972 | 119 | 115 | 105 | 101 | 110 | 102 | 94 | 87 | 96 | 89 |
| 1973 | 121 | 117 | 105 | 101 | 108 | 102 | 90 | 86 | 93 | 88 |
| 1974 | 123 | 119 | 105 | 101 | 108 | 104 | 89 | 85 | 92 | 88 |
| 1975 | 125 | 122 | 105 | 102 | 104 | 99 | 84 | 80 | 87 | 83 |
| 1976 | 127 | 123 | 105 | 102 | 107 | 102 | 84 | 80 | 88 | 84 |

Sources: FAO (1977) and USDA (1977).

[a]The USDA's per capita figures are based on population data which overestimate the rate of population growth. The adjusted figures are based on IHS data reported in Table 1.1.

production increases [1/] for only 9 crops and 3 types of livestock products. There is no coverage of major domestic-consumption crops such as sorghum, beans, sweet potatoes, cassava, bananas/plantain, and mangoes--not to mention fruits and vegetables of lesser importance. If production of the omitted commodities grew more rapidly than the USDA index--as the FAO data for individual crops suggest, on the whole, was the case--this would explain part of the discrepancy. Secondly, the USDA data show slower growth rates than the FAO for rice, tobacco, sisal, sugar, beef and veal, and pork. This is because the USDA's adjustments to the DARNDR estimates differ from those of FAO. In the case of livestock products, the USDA data refer to commercial production only.

A third index of agricultural production is the index of gross agricultural product calculated from the national accounts data and presented in Chapter 1 (see Table 1.8). These data, which of course do not measure the same thing as the USDA or FAO indices, show a decline in per capita sector product of 10 percent between 1960 and 1976. The serious deficiencies of the national accounts estimates were discussed in Chapter 1.

A fourth index may be derived from a list of production trends for 12 crops prepared by DARNDR for the years 1970-75. If these data are valued in constant (1955) prices, the following index of production is obtained (1970 = 100):

| | |
|---|---|
| 1970 | 100.0 |
| 1971 | 105.2 |
| 1972 | 107.6 |
| 1973 | 108.5 |
| 1974 | 111.4 |
| 1975[a] | 112.4 |

[a]Provisional

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[1/]Production in metric tons is weighted by constant (1961-65) producer prices.

These data show that production of the 12 crops in the index increased by 12 percent during this period, faster than the population increase of 8 percent. As explained below, the trends reported for several crops differ from the USDA and FAO estimates.

## B. PRODUCTION, AREA, AND YIELD OF SPECIFIC CROPS

Table 2.2 presents production data reported by the USDA for 9 crops and by the FAO for 37 crops. The 2 sources use the same estimates for corn production, which is shown to have increased by a total of 8 percent between 1961-65 and 1974-76, failing to keep up with the 20 percent increase in population over this period. The production increase for sorghum matched the population growth rate, while that for rice exceeded it (significantly so according to the FAO data). Production of roots and tubers grew slightly faster than the population, and output of pulses kept pace. Coffee and sisal production decreased, while the trends for fruits and vegetables were mixed.

A production series for 1970-75, prepared by DARNDR for 14 crops, is presented in Table 2.3. Especially noteworthy are the sharp declines reported for corn and sorghum production in 1974 and 1975--very much in contrast to the trends indicated by FAO and USDA estimates. Drought conditions could well have produced a significant decline in production of these grains, but decreases of this magnitude can be questioned. The DARNDR figures for bananas are 3-4 times as high as the FAO's, possibly because they include plantains. Also sharply higher are the DARNDR estimates for sugarcane.

Data on area devoted to crop production are not very reliable, and the FAO has made frequent revisions in its land-use estimates. Its most recent estimates are presented in Table 2.4. These show that 860,000 hectares (31.2 percent of Haiti's land area) were devoted to crop production in 1975, compared with an average of 702,000 hectares (25.5 percent)

Table 2.2

Crop Production, 1961-65, 1967-69, and 1974-76

(thousands of metric tons)

A. USDA Data

| Crop | Annual Averages | | | Total Percentage Changes[a] | | |
|---|---|---|---|---|---|---|
| | 1961-65 | 1967-69 | 1974-76 | 1961-65 to 1967-69 | 1967-69 to 1974-76 | 1961-65 to 1974-76 |
| Rice (paddy) | 64 | 79 | 82 | 23 | 4 | 28 |
| Corn | 231 | 236 | 250 | 2 | 6 | 8 |
| Tobacco | 1 | 1 | 1 | 0 | 0 | 0 |
| Cotton | 1 | 1 | 1 | 0 | 0 | 0 |
| Cottonseed | 3 | 2 | 2 | -33 | 0 | -33 |
| Coffee | 36 | 29 | 34 | -19 | 17 | -6 |
| Cocoa beans | 2 | 2 | 3 | 0 | 50 | 50 |
| Sisal | 24 | 14 | 15 | -42 | 7 | -38 |
| Sugar, raw (centrifugal) | 64 | 53 | 60 | -17 | 13 | -6 |

B. FAO Data

| | | | |
|---|---|---|---|
| Rice (paddy) | 64 | 107 | 67 |
| Corn | 231 | 250 | 8 |
| Sorghum | 185 | 221 | 19 |
| Potatoes | 4 | 7 | 75 |
| Sweet potatoes | 84 | 91 | 8 |
| Cassava | 111 | 145[b] | 31 |
| Yams | 20 | 24[b] | 20 |
| Other roots and tubers | 15 | 17[b] | 13 |
| Dry beans | 39 | 44[b] | 13 |
| Dry cow peas | 28 | 36[b] | 29 |
| Pigeon peas | 3 | 3[b] | 0 |
| Peanuts in shell | 2 | 2 | 0 |
| Castor beans | 2 | 1 | -50 |
| Sesame seed | 2 | 2[b] | 0 |
| Seed cotton | 4 | 3 | -25 |
| Cabbages | 4 | 8 | 100 |
| Tomatoes | 2 | 4 | 100 |
| Eggplants | 1 | 1 | 0 |
| Onions, dry | 2 | 3 | 50 |
| Lettuce | n.a. | 1[b] | n.a. |
| Melons | n.a. | 3 | n.a. |
| Sugarcane | 2,800 | 2,873 | 3 |
| Bananas | 42 | 52 | 24 |
| Coffee, green | 37 | 36 | -3 |
| Cocoa beans | 2 | 4 | 100 |
| Tobacco leaves | 2 | 3 | 50 |
| Sisal | 26 | 19 | 27 |
| Cottonseed | 2 | 2 | 0 |
| Coconuts | 22 | 29 | 32 |
| Oranges | 21 | 24 | 14 |
| Tangerines | 7 | 8 | 14 |
| Lemons and Limes | 21 | 24 | 14 |
| Grapefruit and Pomelos | 6 | 8 | 33 |
| Avocados | 37 | 49 | 32 |
| Mangoes | 204 | 277 | 36 |
| Pineapples | 1 | 2 | 100 |
| Cotton lint | 1 | 1 | 0 |

Source: FAO (1977) and USDA (1977).

[a]Because production figures are rounded to the nearest thousand metric tons, percentages changes calculated for crops with low tonnages can be misleading.

[b]1973-75.

Table 2.3

DARNDR Crop Production Data, 1970-1975

(thousands of metric tons)

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975[a] |
|---|---|---|---|---|---|---|
| Coffee | 27.0 | 32.6 | 32.4 | 33.5 | 34.4 | 34.1 |
| Corn | 242.0 | 252.0 | 265.0 | 257.0 | 204.0 | 201.0 |
| Rice | 83.0 | 80.0 | 81.0 | 95.0 | 119.5 | 108.4 |
| Sorghum | 209.0 | 211.0 | 217.0 | 215.2 | 135.0 | 135.0 |
| Sweet potatoes[b] | 7.4 | 7.0 | 7.2 | 7.0 | 6.8 | 7.3 |
| Cassava | 130.2 | 134.0 | 141.0 | 137.0 | 135.0 | 140.0 |
| Peas | 39.5 | 40.0 | 42.0 | n.a. | n.a. | n.a. |
| Bananas | 188.9 | 190.0 | 195.0 | 191.0 | 187.6 | 192.0 |
| Sisal | 15.4 | 15.4 | 16.3 | 18.7 | 27.1 | 21.6 |
| Sugarcane | 4,600.0 | 4,900.0 | 5,047.0 | 4,000.0 | 5,241.4 | 6,159.7 |
| Tobacco | 2.2 | 2.2 | 2.3 | 2.0 | 1.8 | 2.4 |
| Cocoa | 2.7 | 3.1 | 3.3 | 3.1 | 3.5 | 3.4 |
| Cotton | 1.3 | 2.9 | 3.0 | 5.3 | 4.2 | 4.5 |
| Beans | 40.0 | 42.0 | 43.0 | 43.8 | 41.0 | 44.3 |

Source: DARNDR.

[a]Preliminary.

[b]Reported as sweet potatoes, but probably refers to white potatoes.

Table 2.4

Land Use Estimates, 1961-65, 1970, and 1975

(thousands of hectares)

| | Average 1961-65 | 1970 | 1975 |
|---|---|---|---|
| Total area | 2,775 | 2,775 | 2,775 |
| Land area | 2,756 | 2,756 | 2,756 |
| Arable and permanent crops | 702 | 810 | 860 |
| Arable land | 430 | 505 | 530 |
| Permanent crops | 270 | 305 | 330 |
| Permanent pastures | 596 | 635 | 655 |
| Forests and woodlands | 340 | 270 | 235 |
| Other areas | 1,118 | 1,041 | 1,006 |

Source: FAO (1977).

during 1961-65. [2/] In both cases it was estimated that annual crops accounted for just over 60 percent of total crop production.

Yield estimates are presented in Table 2.5. Of the 27 crops for which data are available, yields are reported to have declined for 5. Of those crops for which increases are reported, the distribution by annual rate of increase was as follows:

| | |
|---|---|
| Less than 1.0 percent | 12 |
| 1.0-1.9 percent | 8 |
| 2.0 percent and above | 2 |

These data show that yields for most crops were increasing rather slowly. The situation may in fact be even worse, since the production data on which the yield increases are based may overstate the growth of output (see Chapter 1).

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[2/] A year earlier, area devoted to crop production had been estimated at an average of 765,000 hectares during 1961-65 and 905,000 hectares during 1974. Such increases in area devoted to crop production may be doubted. Though marginal hillside land has been brought into production, other land has had to be abandoned because of severe erosion.

Table 2.5

Crop Yields, Averages for 1961-65 and 1974-76

(kilograms per hectare)

| Crop | 1961-65 | 1974-76 | Annual Rate of Increase, 1961-65 to 1974-76 |
|---|---|---|---|
| Rice (paddy) | 1,910 | 2,274 | 1.5 |
| Corn | 1,039 | 1,049 | 0.1 |
| Sorghum | 923 | 1,001 | 0.7 |
| Potatoes | 16,529 | 14,286 | -1.2 |
| Sweet potatoes | 5,320 | 5,028 | -0.5 |
| Cassava | 3,688 | 4,249 | 1.2 |
| Yams | 19,880 | 24,000[a] | 1.7 |
| Other roots and tubers | 14,760 | 17,033[a] | 1.3 |
| Dry beans | 1,013 | 1,068 | 0.4 |
| Dry cow peas | 632 | 778[a] | 1.9 |
| Pigeon peas | 487 | 533[a] | 0.8 |
| Peanuts in shell | 498 | 512 | 0.2 |
| Castor beans | 352 | 507 | 3.1 |
| Sesame seed | 525 | 556 | 0.5 |
| Seed cotton | 400 | 500 | 1.9 |
| Cabbages | 10,000 | 10,178 | 0.1 |
| Tomatoes | 25,441 | 21,260 | -1.5 |
| Eggplants | 17,940 | 18,000 | 0.0 |
| Onions, dry | 7,095 | 9,055 | 2.1 |
| Garlic | 21,667 | 22,727 | 0.4 |
| Melons | 11,245 | 13,417 | 1.5 |
| Sugarcane | 37,540 | 39,199 | 0.4 |
| Bananas | 12,322 | 14,036[a] | 1.2 |
| Coffee (green) | 1,235 | 1,187 | -0.3 |
| Cocoa beans | 2,296 | 2,222 | -0.3 |
| Tobacco leaves | 731 | 736 | 0.1 |
| Sisal | 539 | 594 | 0.8 |

Source: FAO (1977).

[a]1973-75.

## C. LIVESTOCK

Data on livestock production are shown in Table 2.6. As noted in Chapter 1, the USDA data for beef and veal, mutton and lamb, and pork refer only to commercial production, which is reported to have been stagnant between 1961-65 and 1973-75. FAO estimates include noncommercial production, but the total production increases reported for meat may be overestimated. Pork is the most important meat, followed by beef and veal. Milk production is reported to be rising much more rapidly than the population, a trend that is questionable.

Only on a very small number of farms is livestock raising a principal activity. Rather, a few livestock are kept by most farmers as one element of a multiple-cropping system. As such, animals tend to be complementary with, not competitive to the human population in the use of crops and crop by-products. For some crops, up to two-thirds of the non-marketable nutrients can be converted into animal products. Conditions for hog production are most favorable in the Artibonite and in the Port-au-Prince area, where rice and wheat bran, respectively, are readily available.

Animals are valued by farmers as a repository for savings (see Chapter 3.E.5). The rate of return on investment in livestock may be low, but animals can be sold quickly in rural markets to obtain cash.

Table 2.6

Livestock Production, Averages for 1961-65 and 1974-76

(thousands of metric tons)

| Products | 1961-65 | 1974-76 |
|---|---|---|
| **A. USDA Data** | | |
| Beef and veal | 11 | 11 |
| Mutton and lamb | 2 | 2 |
| Pork | 13 | 12 |
| **B. FAO Data** | | |
| Beef and veal | 13 | 18 |
| Mutton and lamb | n.a. | n.a. |
| Pork | 17 | 24 |
| Goat meat | 3 | 4 |
| Horsemeat | 3 | 4 |
| Poultry meat | 2 | 3 |
| Edible offals | 3 | 5[a] |
| Lard | 1 | 1 |
| Cows' milk | 27 | 40 |
| Goats'milk | 18 | 24 |
| Goat cheese | 1 | 2 |
| Eggs | 6 | 8 |

Source: FAO (1977).

[a]1973-75.

n.a. Not available.

## D. FORESTRY

There is virtually no systematic, managed exploitation of forest resources in Haiti. The original forest cover has been substantially reduced as population pressures have resulted in the uncontrolled denuding of hillsides to clear new crop land or to obtain wood for charcoal production. By 1974, according to estimates made by 2 FAO advisors, the remaining forests amounted to an equivalent of 150 million cubic feet ($m^3$) of solid wood (Raeder-Roitsch and Zenny 1975:5-6). Consumption of wood in 1974 was estimated to be about 4.75 million $m^3$ (solid wood equivalent), with firewood and charcoal accounting for about 95 percent of the total:

| Use | Cubic Meters |
|---|---|
| Firewood and charcoal | 4,500,000 |
| Household uses | 3,500,000 |
| Industrial uses | 1,000,000 |
| Service timber for traditional construction | 200,000 |
| Processed timber for local consumption and export | 45,000 |
| Total | 4,745,000 |

Estimates made by the Ministry of Agriculture show household consumption in 1974 to have been even higher: 10,112,000 steres ($m^3$ of cordwood), or 5,056,000 $m^3$ of solid-wood equivalent. Consumption was assumed to have been growing at the same rate as the number of households, though different assumptions were used for rural and urban consumption patterns. According to these estimates, household consumption of firewood and charcoal grew by 3.1 percent annually between 1950 and 1974 (Wainwright 1976). However, census data show a growth rate in the number of households only about half

as great as the 3.1 percent figure used by DARNDR.[3/]

The lack of an inexpensive substitute for charcoal and firewood, and the present rate of loss of forest resources, point to a serious fuel crisis in the not-too-distant future. Raeder-Roitsch and Zenny (1975: 5-6) estimate that the net loss of forest resources, in solid-wood equivalent, was 3.75 million $m^3$ in 1974 (4.75 million $m^3$ of consumption less 1.0 million $m^3$ of forest growth). They project that this will rise to 7.5 million $m^3$ by 1995, thus completely exhausting the country's forest resources by the end of the century, even without considering losses due to fire and to land clearing. However, their demand projections seem too high, particularly because the assumed annual population growth rate is 2.48 percent, compared with the inter-census (1950-71) figure of 1.6 percent. Still, a downward adjsutment in demand projections only postpones the crisis, not eliminates it. Moreover, local shortages of firewood and charcoal already are occurring and can be expected to become more frequent.

Given the high cost to the rural poor of alternative forms of energy for fuel (electricity, kerosene, solar power), the case for sustained-yield forestry management is particularly strong. The GOH would have to take an active role in such a program, since most of the existing forests are on government land, the exploitation of which should be carefully controlled. Consideration should also be given to systematic exploitation of mangroves and to the planting and systematic management of trees in the dry lowlands where crop production is marginal (Wadsworth and Kornegay 1978). The government has still not developed a clear forestry policy or provided the resources necessary to make such a policy operational.

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[3/] The 3.1 percent figure is based on a comparison between the 1950 census results and the results of a survey conducted in 1966 by SNEM, the malaria control agency.

## E. FISHING

Fishing in Haiti is almost exclusively a small-scale, artisan-type activity. Data regarding employment and production are not very reliable. Recent estimates of the number of persons engaged in fishing vary widely, from 11,000 to 25,000.[4/] The most comprehensive of these studies uses the lower figure, which is composed of 3,000 full-time workers and 8,000 part-time workers (SCET International 1977:41). The former are assumed to fish for an average of 180 days annually, while the average for the part-time group is thought to be 80 days (p. 46).

Production estimates likewise vary considerably, as indicated by the following figures:

| Source | Year(s) to Which Estimates Refer | Production (metric tons) |
|---|---|---|
| Garnier (1976) | Average of recent years through 1975(?) | 4,800 |
| Haiti, DARNDR (1976a:89) | Average of recent years through 1976(?) | 5,505 |
| Haiti, IHS (1977:119) | 1975 | 8,620 |
| SCET International (1977:44-45) | 1976 | 7,270-7,950 |

Even if the higher figures are accepted, fish would still account for only a small share of the animal protein consumed in Haiti (7.6 percent according to the SCET International study [1977:82]).

Table 2.7, which provides annual data from 1969 through 1975, shows a sharp increase in the total catch in 1974 and 1975. This reported increase

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[4/] The 11,000 figure is an estimate made by SCET International (1977:41). Garnier (1976) uses a figure of 15,000, and DARNDR (1976a:89) believes that it may be as high as 25,000.

should be regarded with caution, however, since these data--like the figures from other sources--are based on rather crude estimating procedures. All sources agree, though, that marine fishing is far more important than fresh-water fishing.

Investigations of Haiti's marine resources have suggested that the potential for expanding in-shore and off-shore catches is not very great. Nevertheless, sufficient potential exists for eliminating fish imports, which since 1960 have averaged approximately 2,000 MT annually (but several times this amount in terms of fresh-weight equivalent). Expansion of the ocean catch will require investment in modern equipment as well as training programs.

Fresh-water fishing potential is limited by the very small number of lakes and streams. A fish-pond program was begun in the 1950s, but pond construction and stocking activities have declined since the early 1960s for lack of funding. A rejuvenation of the fish-pond program should be considered, but given technical and managerial problems--and possibly a serious thievery problem--the potential of such a program may be only modest.

Table 2.7

Estimated Annual Fish Production

(metric tons)

| Year | Total | Ocean | Fresh Water |
|---|---|---|---|
| 1969 | 4,753 | 4,500 | 253 |
| 1970 | 3,683 | 3,500 | 183 |
| 1971 | 4,040 | 3,900 | 140 |
| 1972 | 4,324 | 4,200 | 124 |
| 1973 | 4,574 | 4,500 | 74 |
| 1974 | 6,585 | 6,000 | 585 |
| 1975 | 8,620 | 8,000 | 620 |

Source: Haiti, IHS (1977:119), based on information supplied by the Service des Pêcheries, DARNDR.

# CHAPTER 3

# SOCIO-ECONOMIC INDICATORS AT THE NATIONAL AND REGIONAL LEVELS

## A. DISAGGREGATING THE TARGET POPULATION

For planning purposes, almost all rural residents in Haiti can be considered members of the target population to which AID rural development programs are directed. This was evident in the income distribution data presented in Table 1.16 and will become even clearer as additional evidence on income and other level-of-living indicators is discussed below.

Given this situation, there is little to be gained by attempting to disaggregate census and survey data on the rural population down to the arrondissement or commune levels. In any event, much of the socio-economic data which one might wish to have at these levels either is not available or is to be found only on computer cards, tapes, and printouts or on census and survey worksheets. In planning location-specific projects it would be useful to obtain whatever disaggregated census and survey data are accessible from these sources; but for purposes of this document it would be difficult to justify disaggregation below the Department level, except when such data are readily available.

This does not mean that the indicators reported in this chapter are always highly aggregated. Indeed, there is much information available at the village or community level, collected by governments and international agencies, private and voluntary organizations, and individual researchers. A serious problem with such data, for any given socioeconomic indicator, is that they are collected with different methodologies, during different

years, so that comparisons among communities are not easily made. On the other hand, this micro-level evidence is sometimes the only information available, and even when it is not it can serve as a check on the reliability of national census and survey data.

## B. DEMOGRAPHIC CHARACTERISTICS AND TRENDS

### 1. Age and Sex Characteristics

The age structure of Haiti's population may be seen in Table 1.14. These data show that 40.4 percent of the population was less than 15 years old at the time of the 1971 census. This figure is not as high as in some developing countries, where up to 45-50 percent of the population may be in the 0-14 age groups. Still, the Haitian figure--which can be explained by the modest population growth rate--is well above the 25-30 percent figures typical of developed countries. At the other extreme, 4.6 percent of the 1971 population was 65 years old or more, a higher-than-average figure for developing countries. The total "dependency burden," the ratio of the 0-14 and 65+ population to the population in the 15-64 (labor force) age groups, was 81.7 percent. This is slightly above average for developing countries as a group and much higher than the average for developed countries, as indicated in the following figures: 1/

| | Dependency Burden | | |
|---|---|---|---|
| | Total | 0-14 | 65+ |
| Haiti (1971) | 81.7 | 73.4 | 8.3 |
| Developing countries (1970) | 80.8 | 74.8 | 6.0 |
| Developed countries (1970) | 57.4 | 42.3 | 15.1 |

In the 0-14 age groups, the male and female populations are almost identical. But in the 15-19 through 35-39 age groups, the number of

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1/ Data for developing countries as a group and for developed countries are from Timothy King, coord., Population Policies and Economic Development, A World Bank Staff Report (Baltimore: The Johns Hopkins University Press for the World Bank, 1974), Annex Table 8, p. 174.

females substantially exceeds the number of males. This appears to be due primarily to greater emigration by teenage and young-adult males than by females of the same age. Particularly noteworthy is the abnormally low number of men in the 30-34 age group, many of whom apparently left the country in the early and mid-1960s. In the 40-59 age groups, interestingly, the number of men exceeds the number of women. In the older age groups, as is typical, there are more women than men.

2. Internal Migration

The 1950 census showed that there was little internal migration in Haiti (see Table 3.1). Most migration occurred within Departments, and in no instance did as much as 4 percent of a Department's population come from outside its borders. The Artibonite and the West came closest, with 3.8 and 3.7 percent, while the figure for the South was just 0.7 percent. Most of those coming into the West presumably went to Port-au-Prince, while migration to the Artibonite probably was concentrated in the irrigated rice-growing areas.

In the early 1960s Schaedel (1962:11) reported that internal migration was still quite modest. His information presumably is impressionistic, since he does not provide quantitative data, but nevertheless it is worth noting. It appeared to Schaedel that Port-au-Prince and the large towns were receiving migrants from nearby rural areas, but that small towns generally were not. Seasonal migration was said to be centered on the Artibonite (presumably the

Table 3.1

Migration Status of the Population, by Department, 1950
(numbers of inhabitants)

| | Department | | | | |
|---|---|---|---|---|---|
| | Northwest | North | Artibonite | West | South |
| Type of Migration | | | | | |
| Change of commune within an arrondissement | 9,873 | 19,624 | 8,083 | 23,922 | 20,253 |
| Change of arrondissement within a Department | 3,111 | 29,507 | 10,460 | 63,532 | 19,590 |
| Migration from other Departments | 3,679 | 8,017 | 21,826 | 40,256 | 5,442 |
| Migrants from other countries | 130 | 7,883 | 2,242 | 5,891 | 2,797 |
| Total Migration | 16,793 | 65,031 | 42,611 | 133,601 | 48,082 |
| Departmental Population | 168,279 | 539,049 | 567,221 | 1,083,069 | 739,602 |
| Total Migration/Total Population | 10.0 | 12.1 | 7.5 | 12.3 | 6.5 |
| Inter-Departmental Migration/Total Population | 2.2 | 1.5 | 3.8 | 3.7 | 0.7 |

Source: Haiti, IHS (1955).

irrigated areas) with workers coming there from the Central Plateau, [2] the North, and, especially, the Northwest.

The 1971 census results suggest that internal migratory flows had increased during the 1960s. As we noted in Chapter 1, population in the arrondissement of Port-au-Prince grew by 5.9 annually between 1950 and 1971. Detailed information on the migrant status of the 1971 population is available on computer print-out sheets, but time constraints precluded an examination of these data.

Finally, a demographic survey in 1973 estimated that net migration into Port-au-Prince in that year amounted to 19,671. Net movements between Port-au-Prince and the 5 Departments are indicated in Table 3.2. Not surprisingly, a high percentage of the net migration into Port-au-Prince (38.4 percent) comes from elsewhere in the West. But the South, unexpectedly, ranks first with 43.3 percent, leaving only 18.3 percent for the other 3 Departments. The South's contribution to the migratory stream is large even after adjusting the above figures for size of Departmental population. Proximity may play a factor; but the Artibonite is just as close as the South, and transportation difficulties from the North and Northwest would not seem to constitute too formidable a barrier for those determined to escape from rural poverty. This suggests that rural levels of living in the South--or at least parts of it--may be relatively lower than suggested by evidence cited later in this chapter. An alternative explanation,

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[2] Most of the Central Plateau is in the Artibonite; the remainder is in the North and the West. The Central Plateau is thought to have good agricultural potential, but it is isolated from the rest of the country because of poor transportation and communications facilities.

Table 3.2

Net Migration into Port-au-Prince, 1973

| Department of Origin or Destination | Port-au-Prince | | |
|---|---|---|---|
| | Arrivals | Departures | Net In-Migration |
| West | 16,315 | 8,757 | 7,558 |
| North | 2,760 | 1,639 | 1,121 |
| Artibonite | 3,890 | 2,044 | 1,846 |
| South | 16,633 | 8,106 | 8,527 |
| Northwest | 1,165 | 546 | 619 |
| Total | 40,763 | 21,092 | 19,671 |

Source: Haiti, IHS (1975a:27).

though, is that a significant proportion of rural-urban migration which in other Departments is directed towards Departmental or arrondissement capitals, is in the case of the South directed toward Port-au-Prince. 3/

3. External Migration

The annual rate of external migration is usually estimated to be 0.4 percent of the population, 4/ though the actual figure could well be much higher. 5/ This is a major reason for the country's rather modest population growth rate. Migration seems to have been particularly high among professionals. Rotberg (1971:243) estimates that 80 percent of all Haitian professionals were living abroad in the mid-1960s, not only in developed countries but also in Zaire, Guinea, and other French-speaking developing countries. 6/ Migration of professionals has been prompted by: (1) an oversupply of high-level manpower relative to the number of professional jobs that a stagnant and low-income society has been capable of effectively

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3/ Table 1.7 shows that the urban population in the South grew considerably less rapidly between 1950 and 1971 than elsewhere in the country, except for the North. The rural population, meanwhile, grew faster than in the other Departments; but since the differences among Departments are small and the data are shaky, this is not necessarily an indication of relative affluence.

4/ E.g. a demographic survey showed that 18,557 Haitians--out of a total population of 4,439,600--left the country in 1973 (Haiti, IHS, 1975a:28).

5/ Segal (1975:199), whose research is quite detailed, estimates that emigration has averaged 35,000 annually since 1970.

6/ For the early 1960s Rotberg reports an estimated 1,000 Haitians in Zaire and 300 in Guinea.

demanding; (2) a decline in real salaries from low to abysmally low levels (see Bertrand et al. 1976); and (3) professionally unattractive political conditions.

Since 1971, however, all 3 of these contributing factors have changed: the sharp rise in foreign economic assistance has increased the demand for Haitian "counterpart" personnel; overseas donors have provided salary supplements to Haitians working on donor-financed projects; and the political environment has become professionally less inhibiting. Haitian professionals have been returning to their homeland, both to work in government and to take advantage of private business opportunities in a rapidly expanding urban market. 7/ The extent of this inflow, however, is not yet clear; the numbers may well be quite small.

Most Haitians who migrate are not professionals. Many are farmers who have been pushed off the land by population pressure or who simply believe that life must be better someplace else. Most observers believe that the principal destination of Haitian emigrés has been the Dominican Republic, though sizeable numbers of Haitians are also said to be residing in the Bahamas, Cuba, the United States, and Canada. 8/ Some of the data on Haitians residing overseas are presented in Table 3.3. Given the wide range of these estimates--particularly for the Dominican Republic--it is difficult to say what the true figure

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7/ The World Bank estimates that private consumption per capita in Port-au-Prince may have increased by 10 percent annually between 1971 and 1975 (IBRD 1976:Vol. I, pp. 13-14).

8/ In recent years, however, migration to Cuba and the Bahamas seems to have diminished. Dorville (1975:28), in fact, says that migration to the Bahamas has stopped. According to USAID/Haiti (1974:14), Haitians may account for 20 percent of the Bahamas' population.

Table 3.3

Estimates of Haitians Residing Overseas, Various Years, 1950-1976

| Source of Estimate | Country and Year | | | | |
|---|---|---|---|---|---|
| | Dominican Republic | Bahamas | Cuba | United States | Canada |
| Schaedel (1962:12) | 18,772[a] (1950) | - | 27,543[a] (1953) | - | - |
| Rotberg (1971:249) | 300,000 (1968) | 11,000-20,000[b] (1968) | 50,000 (1968) | 75,000 (1968) | 10,000 (1968) |
| Díaz Santana (1972) | 42,142 200,000[c] (1970) | - | - | - | - |
| Dorville (1975:28) | - | 38,000 (197?) | - | - | - |
| Segal (1975:198)[d] | 100,000 (1975) | 20,000 (1975) | e | 200,000 (1975) | 15,000 (1975) |
| Palmer (1976:137) | - | - | - | 21,466[f] | - |
| Joseph (1976) | 300,000-500,000[g] (1976) | - | - | - | - |

Sources: As indicated above.

[a]Census data.

[b]The official Bahamian figure is 11,000.

[c]The Dominican Republic census figure is 42,142. Estimates ranging from 87,000 to 200,000 are attributed to various Dominican Republic agencies.

[d]Estimated number who have migrated since 1960.

[e]The number is said to be small.

[f]New York City only (1970 census).

[g]Attributed to Dominican Republic officials.

is; 200,000-300,000 Haitians in the Dominican Republic, however, is a plausible range. In the United States, the number of illegal Haitian residents may be several times the number whose residence is legal (Segal 1975:215).

In addition to these permanent migratory flows, there is also considerable seasonal migration to the Dominican Republic, where Haitians are said to account for two-thirds or more of those employed as cane cutters by the sugar mills. 9/

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9/ Palmer (1976:138) cites newspaper reports in the Dominican Republic of a survey showing that the 7 largest sugar mills employed 16,228 Haitians. Díaz Santana (1972), referring probably to the same study, says that two-thirds of those employed by the sugar mills were Haitians. Joseph (1976) estimates that the figure is between 60 and 80 percent. Dorville (1975:27) estimates the number of seasonal migrants to be 20,000. Joseph alleges that the governments of François Duvalier and Joaquín Balaguer agreed in 1966 to permit 12,000-15,000 Haitians to seasonally migrate each year; the Dominican Republic thus got cheap labor, while Duvalier, it is said, received a fee of $10 per worker annually. Five percent of the Haitians' wages were said to have been deposited in Haiti to ensure their return, but this was not always sufficient incentive. The recent fall in sugar prices is said to have resulted in the repatriation of some Haitians.

## C. LAND TENURE AND LAND DISTRIBUTION

### 1. Census and Survey Data: 1950, 1970, and 1971

The census of 1950 showed that the great majority of Haitian farmers--at least two-thirds and perhaps as many as 80 percent--were landowners. 10/ Table 3.4 shows that the percentage of owners was roughly the same in all 5 Departments. 11/ Those who did not own land rented from the State or from private owners, sharecropped, or were farm managers.

Unfortunately, the census document does not indicate how the data on land tenure, or the other agricultural sector statistics, were obtained.

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10/ The census divides farm households into 3 categories: those who farm land adjacent to their homesite as well as other plots; those who farm only land adjacent to their homesite; and those whose farm land is away from their homesite. For the first two categories the percentage of owners is 84.9 percent and 78.2 percent, respectively. No breakdown by tenure status is available for the third category, though one might expect the percentage of owners to be smaller. This category presumably includes landless laborers, whose number is not known. Landless labor will be discussed later in this section.

11/ Excluding those farming only land away from their homesite, for whom the percentage of owners is not known, the Departmental figures are as follows:

| | |
|---|---|
| Northwest | 79.6 |
| North | 83.1 |
| Artibonite | 83.4 |
| West | 79.9 |
| South | 84.3 |

Table 3.4

Land Tenure in 1950

| Tenure Category | North-west | North | Arti-bonite | West | South | National Total |
|---|---|---|---|---|---|---|
| Farming land adjacent to homesite plus other land--Total | 14,326 | 48,182 | 51,878 | 86,224 | 76,936 | 277,546 |
| Owners | 12,060 | 41,140 | 44,718 | 71,617 | 66,143 | 235,678 |
| Renting from State | 709 | 1,022 | 850 | 2,086 | 594 | 5,261 |
| Renting from private owners | 276 | 1,475 | 1,391 | 3,487 | 1,653 | 8,282 |
| Managers | 484 | 1,730 | 1,375 | 2,172 | 2,281 | 8,042 |
| Sharecroppers | 556 | 1,983 | 1,128 | 3,754 | 2,207 | 9,628 |
| Tenure status unknown | 241 | 832 | 2,416 | 3,108 | 4,058 | 10,655 |
| Farm only land adjacent to homesite--Total | 10,063 | 27,795 | 32,848 | 73,602 | 44,992 | 189,300 |
| Owners | 7,363 | 22,005 | 25,931 | 56,106 | 36,626 | 148,031 |
| Renting from State | 965 | 868 | 902 | 3,562 | 882 | 7,179 |
| Renting from private owners | 196 | 893 | 1,601 | 2,908 | 1,137 | 6,735 |
| Managers | 651 | 1,730 | 1,761 | 2,927 | 2,230 | 9,299 |
| Sharecroppers | 675 | 1,687 | 1,309 | 5,051 | 1,782 | 10,504 |
| Tenure status unknown | 213 | 612 | 1,344 | 3,048 | 2,335 | 7,552 |
| Farming only land away from homesite | 5,818 | 22,662 | 32,593 | 24,929 | 23,032 | 109,034 |
| Farm Households--Total | 30,207 | 98,639 | 117,319 | 184,755 | 144,960 | 575,880 |

Source: Haiti, IHS (1955).

Apparently, though, the data are based on a complete enumeration of rural households. [12] A number of limitations and problems of these data may be noted:

1. There is no indication of how many "owners" actually have clear legal title to their land. As we shall see below, relatively few seem to fall into this category.

2. Many landowners also rent or sharecrop. The 1950 census does not provide any information on mixed tenure patterns; nor does it indicate what percentage of land is owned.

3. The average number of parcels farmed is not indicated, though the data in Table 3.4 show that the minimum figure is 1.48. [13]

4. There is little doubt that the 1950 census--and the 1971 census as well--undercounted large private landholdings as well as land owned by domestic and foreign corporations. Evidence on this point will be discussed below.

5. The average size of rural households suggested by the census data is somewhat less than 4.5, [14] a figure which seems too low in view of evidence from other countries at similar levels of

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[12] A report by a U.S. government advisor (Swan 1951) on preparations for and the carrying out of the census is not particularly detailed or critically analytical.

[13] Forty-eight percent of farm operators farmed land away from their homesite as well as land adjacent to their homesite.

[14] Table 1.7 shows the total rural population in 1950 to be 2,713,300. Assuming that 5 percent of rural households were engaged in nonfarm activities, and ignoring the relatively few farm families living in urban areas, the farm household population would be 2,577,600.

development as well as from several local and regional rural surveys in Haiti (see footnote 17/ below).

6. The reported land area devoted to crop production is a minimum of 1,012,827 carreaux, or 1,306,547 hectares, a figure which seems too high in view of subsequent estimates. 15/

7. There are no estimates of the number of landless laborers.

Published data from the 1971 census do not provide any information on land tenure patterns. However, information on land tenure was collected as part of a socio-economic survey conducted in 1970 (Haiti, IHS, 1975). This survey, based on a 2 percent sample of rural households (and a 10 percent sample in urban centers), shows that 60.2 percent of all parcels were owned; but there are no data on the percentage of land accounted for by each tenure category. These data, shown in Table 3.5, are available only for the nation as a whole. Departmental figures have not been published.

The 1970 data are subject to some of the same limitations as those from 1950: the percentage of landowners with clear legal titles is not indicated; there is no information on mixed tenure patterns; and there are no data on landless laborers. On the other hand, it is possible to calculate that the number of parcels per farm household is 2.2. This figure, however, differs from the estimate of 1.8 parcels

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15/ The following crops are included in this estimate: bananas, coffee, sugarcane, cacao, sisal, cotton, sweet potatoes, corn, peas, plantain, sorghum, rice, tobacco, and peanuts. No land area estimates are provided for the following crops, though the percentage of farmers growing them is indicated: manioc, yams, malanga, coconuts, avocados, mangoes, citrus fruits, cabbage, eggplant, tomatoes, and potatoes. There is no mention at all of beans, one of the principal food crops. Neither is there an estimate of land devoted to livestock production.

Table 3.5

Land Tenure in 1970

| Tenure Category | Number of Parcels | % of Parcels |
|---|---|---|
| Owners | 893,659 | 60.2 |
| Renting from State | 56,473 | 3.8 |
| Renting from private owners | 155,557 | 10.5 |
| Sharecroppers | 213,528 | 14.4 |
| Other forms of tenure | 165,168 | 11.1 |
| Total | 1,484,385 | 100.0 |

Source: Haiti, IHS (1975b).

per farm unit reported in the 1971 census. [16] Moreover, the total number of parcels reported in 1971 (1,118,230) was 25 percent less than the number estimated for 1970 (1,484,385); this casts doubt on the reliability of both sets of data. The average farm household in 1971 was estimated to have 4.5 members, another figure that should be regarded with caution. [17]

2. Other Evidence

Studies of specific communities or regions confirm the findings of the 1950 census and 1970 survey that most Haitian farmers consider themselves landowners. [18] The studies listed in Table 3.6 show the percentage of farmers owning at least part of their land to range from 56 to 100 percent.

Many farmers not only own land but also rent, sharecrop, or farm under other forms of tenure. The 1971 census showed that the average number of parcels per farm unit was 1.8. This figure seems too low,

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16/ At the Departmental level, the 1971 figures were (Haiti, IHS, 1973:43):

| | |
|---|---|
| Northwest | 1.78 |
| North | 1.88 |
| Artibonite | 1.39 |
| West | 1.76 |
| South | 1.87 |

17/ This was the same figure calculated for farm households in the 1970 survey, and for all households in the 1950 census. A low figure is supported by Gerald Murray's research in a community in the Cul-de-Sac, where the average household size was closer to 4 than to 5 (personal communication, 11 November 1977). But studies in some communities have indicated an average farm household size of more than 6 persons (Desplechin 1971:17 and Kulakow et al. 1976:1 for the Plaine des Cayes; and Pfrommer et al. 1976:39 for the Northwest). While the national average is unlikely to be that high, many observers would consider the true figure to be in the neighborhood of 5 persons per farm household.

18/ For a discussion of the historical origins of today's land tenure pattern, see Murray (1977:Ch.2-3) and Palmer (1976:Ch.4).

Table 3.6

Percentage of Farmers Who Own at Least Part of Their Land: Results of Local and Regional Studies

| Authors[a] | Date/Pages[a] | Geographic Area | % Owning Land |
|---|---|---|---|
| Brown, Heidgerken, and Jacobsen | 1976:16 | Grande Rivière du Nord (North) | 65-97[b] |
| Desplechin | 1971:23 | Plaine des Cayes (South) | 100[c] |
| Dorville and Dauphin | 1974:22 | Arrondissement de Cap Haitien (North) | 71[d] |
| Guerra, Lay, and La Gra | 1972:17 | Artibonite Valley | 76[e] |
| Haiti, Bureau of Nutrition | 1977:12 | 4 communities in several areas | 56-81[f] |
| La Gra | 1972:Annex II, p. 5 | Bas Boën, Plaine du Cul-de-Sac (West) | 89[g] |
| Murray | 1977:208 | Thomazeau, Plaine du Cul-de-Sac (West) | c. 90[h] |
| Palmer | 1976:146-148 | Belladère (West) | 92[i] |
| Pfrommer et al. | 1976:252 | 4 communities (Northwest) | 58-73[j] |
| Riaño-Serrano | 1975:16 | Desarmes (Artibonite) | 100[k] |
| St. Clair and Dauphin | 1975:7 | Arrondissement de Cap Haitien (North) | 75[l] |
| White, J. G. Engineering Corp. | 1976:Exhibit 8.6-1, p. 4. | Dubreuil, Plaine des Cayes (South) | 77[m] |

Sources: As indicated above.

[a]See Bibliography for complete references.

Notes to Table 3.6 (continued)

[b]"Owned" and "inherited" categories combined; the "owned" percentage alone ranges from 36 to 76 percent in the 6 communities studied. The data seem to refer to land area. According to the authors, "land tenure and availability is [sic.] extremely difficult to determine. The peasants often are unwilling to admit how much land they own. Much of the land is undivided at the owner's death because of the high cost of surveying. As a result two generations of descendents may work a large block of land without knowing exactly how much they have" (p. 16).

[c]Of the 50 farmers interviewed only 4 owned all their land and did not lease any of it to others; 4 farmed part of their land and leased part to others; and 42 leased part of their land to others and rented from others. This was a very biased sample, farmers having been chosen in accordance with accessibility and ability to answer survey questions. The average amount of land owned was 3.5 hectares, well above the national (or Departmental) average.

[d]Percent of land "occupied by owners." This category is subject to several interpretations but presumably means percent of land owned. The figure is based on a survey of 150 farm units; there is no indication of how the sample was chosen.

[e]Percent of parcels owned. Based on a survey of 1,105 households with 2,472 parcels in an irrigation project area where land tenure information judged to be excellent is available (from a cadastral study based on aerial photographs and surveys carried out between 1950 and 1965). The project area is estimated to contain 14,434 households; about 90 percent of their land is covered by the cadastral study.

[f]Percent of parcels. Based on parcels with title, parcels considered owned without title, and undivided parcels worked by several families inheriting land considered to be owned (propriétés indivis). The percentage of parcels for which a title was held ranged from 30 to 68 percent in the 4 communities studied. The study is based on interviews with 150 families in each community, but how the sample was determined is not made clear.

[g]Percent of parcels owned in the Bas Boën cooperative (100 percent sample of 102 members) and in 3 neighboring communities (50 percent sample). Of the 1,251 parcels in the sample, land tenure information was obtained on 1,172. Of this latter number, 970 parcels were owned outright, with the owners claiming to have legal paper titles; an additional 34 were propriétés indivis farmed by several families. More than 90 percent of the land area was owned.

[h]Though most plots in the community studied were sharecropped, fewer than 2 dozen of the 228 farmers were sharecroppers only. This excellent study of how land tenure patterns have changed in response to population growth should be required reading for all students of rural Haiti.

Notes to Table 3.6 (continued)

[i]A 1 percent sample of farm households in the Belladère area (N = 62) found that 92 percent own at least some of the land they farm; 71 percent own all their land, with most reported to have "some form of legal title." Many farmers are said to plant at least some of their crops on propriétés indivis.

[j]Based on a survey of 243 households. Of the 608 parcels farmed, 401 were owned. Legal titles were claimed by the owners of 370 parcels.

[k]Based on a survey of 10 percent of the households (N = 42). Sixty-two percent also farmed land under rental, sharecropping, or other arrangements. No information is provided on land titles.

[l]Based on a survey of 70 percent of the farm households in the Arrondissement du Cap Haitien (N = 7,355). The title situation is not clear.

[m]Based on a 10 percent sample survey in the Dubreuil irrigation area (N = 935). No information is provided on land titles.

since Haitian farmers are reported to be very reluctant to provide complete information on their landholdings (Brown, Heidgerken, and Jacobsen 1976:16; Murray 1977:212; Wesselman 1977:5-6). Support for a higher figure comes from the 1970 socio-economic survey, which indicates an average of 2.2 parcels, and from 7 of 9 local and regional surveys, which report figures ranging from 2.2 to 5.4 parcels (see Table 3.7).

Haitian farmers often deliberately seek to have fragmented landholdings, particularly in different ecological zones, because this provides some security against crop failure in any one area. Typically, the farmer will try to have both "cool" lands in the mountains, at an elevation of 2,200 feet or more, and "hot" lands in the plains (Brisson 1976:10).[19/] If land cannot be purchased, the farmer will seek to rent or to enter into a sharecropping agreement.

Table 3.7 shows that 14.4 percent of agricultural parcels were sharecropped in 1970. Under this form of land tenure, the farmer provides seeds, plants, labor, and other inputs and shares the output with the landowner in accordance with a pre-arranged agreement. This system is often referred to in Haiti as de moitié, which implies a 50-50 sharing of output. However, other percentage splits apparently take place. [20/]

Land may be rented either from private owners (10.5 percent of all farm parcels in 1970) or from the State (3.8 percent). If the contract

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19/ "Cool" lands are distinguished not only by altitude but alternatively by the presence of natural subsoil moisture (Murray 1977:204).

20/ In the community studied by Murray, farmers sharecropping land owned by a relative could claim up to two-thirds of the harvest (pp. 489-490). Murray's research suggests that the census may underestimate the importance of sharecropping.

Table 3.7

Average Number of Parcels per Farm Unit:
Results of Local and Regional Studies

| Authors | Date/Pages[a] | Geographic Area | Average No. of Parcels |
|---|---|---|---|
| Dorville and Dauphin | 1974:22 | Arrondissement du Cap Haitien (North) | 2.8[b] |
| Guerra, Lay, and La Gra | 1972:17-19 | Artibonite Valley | 2.2[b] |
| Kulakow et al. | 1976:"Analyse" section, p. 16 | Plaine des Cayes (South) | 2.6[c] |
| La Gra | 1972:Annex II, p. 7 | Bas Boën, Plaine du Cul-de-Sac (West) | 2.4 - 3.3[b] |
| Murray | 1977:211 | Thomazeau, Plaine du Cul-de-Sac (West) | 5.4[b] |
| Palmer | 1976:149 | Belladère (West) | 2.6[b] |
| Pfrommer et al. | 1976:250-251 | 4 communities (Northwest) | 2.6 - 3.4[b] |
| St. Clair and Dauphin | 1975:7 | Arrondissement du Cap Haitien | 1.2[b] |
| White, J. G., Engineering Corp. | 1976:Exhibit 8.6-1, pp. 2-3 | Dubreuil, Plaine des Cayes (South) | 1.7[b] |

Sources: As indicated above.

[a]See Bibliography for complete references.

[b]For comments on these studies, see the footnotes to Table 3.6.

[c]Based on a non-random survey of 122 farm units.

is unwritten, the 1962 Rural Code (Haiti, Département de la Justice, 1962) provides for the following periods of contract validity:

| | |
|---|---|
| annual crops or nurseries | 3 years |
| pastures, bananas, cotton | 5 years |
| coconuts, orchards, rubber | 17 years |
| other crops needing 3 or more years before harvesting | 10 years |

For leased land already under cultivation, the lease terms for the last 3 categories were fixed at 3, 9, and 5 years, respectively ("New Rural Code" 1962). Written contracts (and perhaps, in practice, unwritten ones) are sometimes limited to one year, thus encouraging overworking of the soil and contributing to the country's severe erosion problem (Desplechin 1971:24; Engineering Consultants 1975:37; Keogh 1960).

Although one recent observer argues that there is very little State-owned land in Haiti (Palmer 1976:146), the great majority believe otherwise. Just how much the State does own--particularly land suitable for crops or livestock--is not at all clear. One observer, writing before the 1950 census results were published, argued that "the State is without question the greatest landowner . . ." (Folsom 1954). This seems very likely if the statement refers to all land, not just to agricultural land. If it refers to the latter, then the 1950 census provided no information to verify or contradict Folsom's judgment; neither did the 1970 socio-economic survey or the 1971 census. Comments on the State's landholdings thus are often vague, referring to "a number of lands," "large areas," "many farmers leasing from the State," etc. (Haiti, DTPTC, 1977:Vol. VI (Draft), Appendix 4F, p. 2; IDB 1974:77-91; Métraux and collabs. 1951; Rotberg 1971:17; USOM/Haiti 1959:1).

Ocasionally, however, one does find some figures on state-owned lands in specific areas:

1. Dorville (1975:12) reports that the state owns 40,000 hectares, "almost uninhabited," in the Central Plateau. Qualitative judgments about State-owned land in this relatively underpopulated area make this figure plausible.
2. Dorville and Dauphin (1974:6) report that the State is the largest landowner in the Arrondissement du Cap Haitien. Officially, it is reported to rent 2,500 hectares to the Caldos Sugar Company; but the authors argue that the actual figure is higher.
3. Steverlynck (1976:19) mentions State-owned lands in the Vallée des Trois Rivières totalling at least 298 hectares.

Finally, a few intensive studies of specific regions have reported that the State owns very little land there (Métraux and collabs. 1951, for the Marbial Valley near Jacmel in the South; and Palmer 1976:146, for the Belladère area near the Dominican Republic border in the West).

An interesting aspect of the land tenure situation is reported by Palmer (1976:190) for the Belladère area, where "many"plots (not quantified) are said to be lying idle because they were so small that their owners abandoned them and permanently migrated. The lack of a cadastral survey, and thus of clear land titles, make land transfers in this area difficult; farmers remaining in the area, it is said, have not utilized these plots because of their traditional respect for property rights. Table 1.7 shows that the Arrondissement de Lascahobas, in which Belladère is located, experienced a rural population loss of

about 9 percent between 1950 and 1971. Three other Arrondissements--Grand-Rivière-du-Nord and Limbé in the North and Belle-Anse in the West--have experienced similar losses of population, but reports of idle, abandoned land were not found for these areas. This matter should be explored further to determine to what extent private farm land is lying idle because of land tenure problems, and to what extent these lands might be unexploited for other reasons, such as loss of soil fertility. In contrast to Palmer's findings, Murray (1977:320) found that persons abandoning land in the Thomazeau area forfeited ownership rights, which passed to those who would have inherited the land.

3. Landless Labor

Very little is known about landless labor in Haiti. Pierre-Charles (1967:67-68), using the 1950 census data, estimated that 282,454 families were landless in that year; but this figure results from a misinterpretation of the census results, which provide no information on landless laborers but suggest that their numbers are very small. 21/

A restricted report by one of the international agencies mentions an (unidentified) 1972 survey showing that 1 million Haitians were landless. This is doubtful, even if the figure includes family members, as probably it is meant to do. More likely, the figure refers to

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21/ Specifically, Pierre-Charles assumes that only 277,546 families held land under various forms of tenure, when in fact this is only the figure for the first of the 3 categories of farmers shown in Table 3.4. (Apparently relying on secondary sources, he assumed that the total number of farm families was 560,000; the census figure is actually 575,880.) Some landless farmers may be included in the last of the 3 categories in Table 3.4, but most observers believe that these figures refer to farmers with land.

farmers who did not own their land but occupied it under other forms of tenure.

Gow (1977:6) notes that 89.3 percent of the rural population were shown by the 1971 census to be engaged in agriculture, while 80.9 percent were living on farms. He then raises the possibility that the difference (a total of about 288,000 persons, or 64,000 families) might be accounted for by landless families; but given the uncertainties involved he does not make a firm conclusion to this effect.

Wage labor is widely used in some parts of Haiti, as indicated elsewhere in this study, but it is not at all clear whether most of the workers hired are landless. Indeed, Métraux and his collaborators (1951), writing about the conditions in the Marbial Valley around 1950, stated that most day laborers were also landowners. Murray found the same to be true in a community in the Cul-de-Sac (personal communication, 11 November 1977). 22/ While the weight of the evidence suggests the the number of landless laborers is relatively low, 23/ it is clear that many of those who do occupy land have so little that they must supplement their farm earnings with income from other sources.

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22/ Murray also found that individuals were reluctant to seek wage employment in their own community, generally preferring to seek work elsewhere.

23/ See also the discussion of wage rates below.

4. Land Distribution

Both the 1950 and 1971 censuses show that the distribution of land in Haiti is not nearly so unequal as in most Latin American countries. 24/ The census data (see Tables 3.8 and 3.9) yield the Lorenz curves shown in Figure 3.1. The Gini coefficients derived from these curves are .49 and .51, indicating a slight tendency toward greater inequality. Table 3.10 shows little variation in the degree of land concentration by Department. Land is shown to be most equally distributed in the Artibonite, and most unequally distributed in the Northwest.

Given the poor quality of the data, however, it would be hazardous to make any definitive conclusions about the rankings of the 5 Departments or about trends in the equality of land distribution. Although the increase in the rural population has definitely caused some land to be subdivided, the effect of subdivision on the Gini coefficient cannot be determined unless we know which farm units have been most affected--the relatively small ones or the relatively large ones. The information needed to make this determination is not available. 25/

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24/ These figures may be compared, for example, with Gini coefficients for land distribution of 0.87 in Bolivia and 0.82 in Ecuador. (The figure for Bolivia, though, is not very reliable, as explained in my paper, Rural Income Distribution in Bolivia: A Summary and Evaluation of Quantitative and Qualitative Information, Working Document Series: Bolivia, General Working Document No. 2 (Washington, D.C.: Rural Development Division, Bureau for Latin America, AID, July 1977). The figure for Ecuador is from Américo Sánchez Cárdenas, "La reforma agraria en Ecuador: Una prioridad desatendida," Comercio Exterior [México] 20 [May 1970]: 402.)

25/ Also, insufficient data are available to adjust the data on land distribution for differences in land quality.

Table 3.8

Distribution of Agricultural Land, 1950

| Farm Size (carreaux) | Assumed Mean[a] | No. of Farms | % of Farms | Cumulative % | Estimated Area | % of Area | Cumulative % |
|---|---|---|---|---|---|---|---|
| Less than 0.25 | 0.18 | 17,784 | 3.2 | 3.2 | 3,201 | 0.3 | 0.3 |
| 0.25- 0.49 | 0.37 | 68,003 | 12.0 | 15.2 | 25,172 | 2.2 | 2.5 |
| 0.50- 0.74 | 0.62 | 90,680 | 16.0 | 31.2 | 56,222 | 5.0 | 7.5 |
| 0.75- 0.99 | 0.87 | 46,235 | 8.2 | 39.4 | 40,224 | 3.5 | 11.0 |
| 1.00- 1.99 | 1.50 | 171,171 | 30.3 | 69.7 | 256,757 | 22.7 | 33.7 |
| 2.00- 2.99 | 2.50 | 80,568 | 14.3 | 84.0 | 201,420 | 17.8 | 51.5 |
| 3.00- 3.99 | 3.50 | 37,552 | 6.6 | 90.6 | 131,431 | 11.6 | 63.1 |
| 4.00- 4.99 | 4.50 | 18,853 | 3.3 | 93.9 | 84,839 | 7.5 | 70.6 |
| 5.00- 5.99 | 7.50 | 27,586 | 4.9 | 98.8 | 206,895 | 18.3 | 88.9 |
| 10.00-19.99 | 15.00 | 5,671 | 1.0 | 99.8 | 85,065 | 7.5 | 96.4 |
| 20.00 & More | 30.00 | 1,362 | 0.2 | 100.0 | 40,860 | 3.6 | 100.0 |
| Unknown[b] | - | 10,385 | - | - | | - | - |
| Total | - | 575,880 | - | - | - | - | - |
| Total excluding Unknown | - | 565,495 | 100.0 | 100.0 | 1,132,086 | 100.0 | 100.0 |

Source: Haiti, IHS (1955).

[a]Data necessary to calculate the actual mean are not available.

[b]Not included in calculating the Gini coefficients in Table 3.10.

Table 3.9

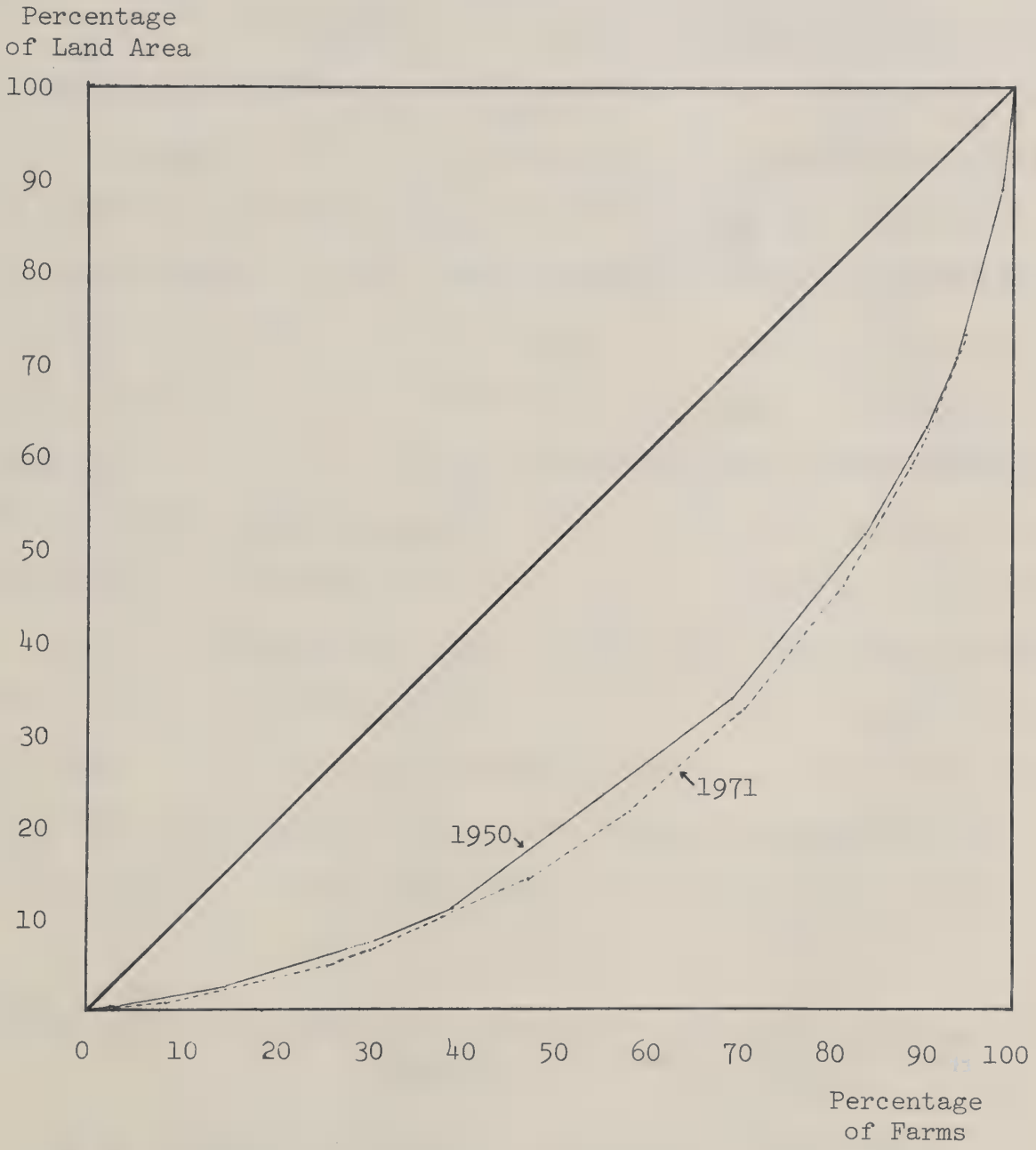
Distribution of Agricultural Land, 1971

| Farm Size (carreaux) | No. of Farms | % of Farms | Cumulative % | Area in Farms | % of Area | Cumulative % |
|---|---|---|---|---|---|---|
| 0.01- 0.08 | 16,820 | 2.7 | 2.7 | 850 | 0.1 | 0.1 |
| 0.09- 0.16 | 36,050 | 5.9 | 8.6 | 4,495 | 0.7 | 0.8 |
| 0.17- 0.25 | 107,480 | 17.4 | 26.0 | 27,410 | 4.1 | 4.9 |
| 0.26- 0.38 | 28,485 | 4.6 | 30.6 | 10,220 | 1.5 | 6.4 |
| 0.39- 0.50 | 104,890 | 17.0 | 47.6 | 51,045 | 7.6 | 14.0 |
| 0.51- 0.78 | 68,260 | 11.1 | 58.7 | 49,270 | 7.4 | 21.4 |
| 0.79- 1.00 | 76,010 | 12.3 | 71.0 | 74,585 | 11.1 | 32.5 |
| 1.01- 1.55 | 65,920 | 10.7 | 81.7 | 89,710 | 13.4 | 45.9 |
| 1.56- 2.00 | 44,340 | 7.2 | 88.9 | 85,320 | 12.7 | 58.6 |
| 2.01- 2.33 | 9,260 | 1.5 | 90.4 | 21,160 | 3.2 | 61.8 |
| 2.34- 3.00 | 27,370 | 4.4 | 94.8 | 75,010 | 11.2 | 73.0 |
| 3.01- 3.87 | 8,440 | 1.4 | 96.2 | 30,070 | 4.5 | 77.5 |
| 3.88- 4.00 | 4,300 | 0.7 | 96.9 | 17,150 | 2.6 | 80.1 |
| 4.01- 5.00 | 7,810 | 1.3 | 98.2 | 37,200 | 5.6 | 85.7 |
| 5.01- 7.75 | 6,440 | 1.0 | 99.2 | 39,310 | 5.9 | 91.6 |
| 7.76-10.00 | 2,660 | 0.4 | 99.6 | 22,610 | 3.4 | 95.0 |
| 10.01-15.00 | 1,285 | 0.2 | 99.8 | 15,480 | 2.3 | 97.3 |
| 15.01-20.00 | 590 | 0.1 | 99.9 | 10,260 | 1.5 | 98.8 |
| More than 20.00 | 300 | 0.1 | 100.0 | 8,240 | 1.2 | 100.0 |
| Total | 616,710 | 100.0 | 100.0 | 669,395 | 100.0 | 100.0 |

Source: Haiti, IHS (1973:38-41).

Figure 3.1

Distribution of Agricultural Land, 1950 and 1971




Sources: Haiti, IHS (1955; 1973).

The Gini coefficients derived from Tables 3.8 and 3.9 almost surely underestimate the degree of inequality in the distribution of land. While the argument of some writers (Casimir 1964; Pierre-Charles 1967:67, 72-75, 77) that Haitian agriculture is dominated by latifundia is too strong a reaction to the conventional wisdom that most agricultural land is in smallholdings, [26/] there is little doubt that the 1950 and 1971 data understate the number of large landholdings and the area they occupy. The 1971 census, for example, shows no farms of more than 15.50 carreaux (20 hectares) in the West; but one does not have to drive very far out of Port-au-Prince to see visible evidence to the contrary. In the North, one sisal company was reported in the late 1950s to own 100,000 acres (31,385 carreaux) and another sisal company, 39,174 acres (12,295 carreaux); two families reportedly held 3,000 carreaux each (US-ICA 1958). The 1950 census, however, showed that the total land area in the North in farms of more than 20 carreaux was just 5,010 carreaux, divided among 167 landholdings. Some large sisal and sugar plantations clearly were not counted. If we add to the 1950 census figure just the land in the 4 properties mentioned above (49,680 carreaux), the 1950 Gini coefficient for the North rises from .45 to .56. [27/] To what extent

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[26/] Equally extreme is the statement in a recent ILO report (1976:9) that "there may be hardly any latifundia" in Haiti.

[27/] The 1971 census showed no farm units in the North of more than 20 carreaux. While it is true that sisal production had fallen sharply by this time, sugar plantations of larger than 20 carreaux may still be found in the north.

Table 3.10

Gini Coefficients for Land Distribution,
by Department, 1950 and 1971

| | 1950 | 1971 |
|---|---|---|
| National | .49 | .51 |
| Northwest | .49 | .55 |
| North | .45 | .50 |
| Artibonite | .47 | .48 |
| West | .51 | .53 |
| South | .49 | .53 |

Source: Tables 3.8 and 3.9.

an additional upward (or offsetting downward) adjustment should be made is not possible to determine. Nor is it clear how much of an adjustment should be made in the Gini coefficients for the other Departments. 28/ Even if such adjustments could be made, however, they would probably still show the distribution of land in Haiti to be less unequal than in most of Latin America.

In addition to examining overall measures of land concentration, it is useful also to see what proportion of farmers operate what sometimes have been called microfundia--which in Haiti might be defined as farms of 1.00 carreau (1.29 hectare) or less. Tables 3.8 and 3.9 show that the proportion of farmers with microfundia rose from 39 percent in 1950 to 71 percent in 1971. 29/ Only 5 percent of all Haitian farmers in 1971 had more than 3 carreaux, 30/ compared with 16 percent in 1950. The average farm in 1971 was just 1.1 carreaux, and the average parcel was a mere 0.60 carreau.

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28/ According to Pierre-Charles (1967:87-88) concessions to companies for the growing of sisal and rubber during World War II totalled 150,000 hectares, but the Departmental breakdown is not provided. Buck (1969:3) reports that the Haitian-American Sugar Company owned 11,000 hectares as of 1969. Mosher (1957:75) reports the general belief that the Haitian elite own little land, but he adds in a footnote that some observers believe the elite hold some land for speculative purposes; specific figures are not provided.

29/ Forty-eight percent in 1971 had no more than 0.5 carreau.

30/ At the Departmental level, the figures were as follows (in percent):

| | |
|---|---|
| Northwest | 11.9 |
| North | 5.6 |
| Artibonite | 4.2 |
| West | 3.9 |
| South | 5.2 |

A comparison of Tables 3.8 and 3.9 leads one to be quite skeptical of the data on farm size in Haiti. The 1950 census shows the land in farms to be much greater than in 1971, even though, like the 1971 census, it does not count many very large landholdings. While some farm land was undoubtedly lost to soil erosion, this is unlikely to account for the entire reported decline of 463,000 carreaux between 1950 and 1971. Another possible explanation of this large discrepancy is that the 1950 census included all land held by farmers, arable or otherwise, and regardless of whether it was cultivated or in fallow. However, the 1950 census data show 1,012,827 carreaux under cultivation, excluding fruits and vegetables. This implies that a minimum of 89.5 percent of all farm land was devoted to crop production, a suspiciously high figure even in a country like Haiti where there is extreme pressure on the land and fallow periods have become shorter, in some cases having been eliminated entirely. This suggests that either the figure for total farm area, or for land devoted to crops--or, very likely, both figures--is grossly inaccurate. On the other hand, perhaps the 1971 data are just as inaccurate.

Still another conceivable explanation of the discrepancy between the 2 sets of data is that the 1950 census includes more State-owned land, either rented or occupied without payment of rent (at least to the State), than does the 1971 census. As we have noted earlier, the State's landholdings are reputedly extensive. However, a glance at Tables 3.4 and 3.5 quickly leads us to dismiss this as an important factor, even if farmers with unknown tenure status in 1950 are considered to be occupying State-owned land.

Another indication of the uncertainty about land use is provided by a comparison of estimates for 1970 contained in 3 successive FAO Production Yearbooks (1974-76):

| | 1974 Yearbook | 1975 Yearbook | 1976 Yearbook |
|---|---|---|---|
| Total area | 2,775 | 2,775 | 2,775 |
| Land area | 2,700 | 2,700 | 2,756 |
| Arable and permanent crops | 370 | 872 | 810 |
| Arable land | n.a. | 500 | 505 |
| Permanent crops | n.a. | 372 | 305 |
| Permanent pastures | 500 | 510 | 635 |
| Forests and woodlands | 700 | 70 | 270 |
| Other areas | 1,205 | 1,323 | 1,041 |

The figures (in thousands of hectares) speak for themselves.

In summary, the data on total farm land and its distribution are very unreliable. Any statement about changes in land under cultivation, or in the distribution of landholdings, must be regarded with skepticism. Nevertheless, it is still possible to make 3 broad generalizations. First, the overwhelming majority of Haitian farmers have very little land, and much of it is of poor quality. Secondly, the distribution of private (including company-owned) land is not so unequal as to constitute the kind of serious social problem that exists, say, in the Andean countries. There seems to be more scope for transferring State lands to small farmers than for redistributing private land. Finally, even if available private and State-owned lands were redistributed to smallholders, the average increase in the arable land available to them would be quite modest.

## D. PRODUCTION AND MARKETING ACTIVITIES

### 1. Production Technology

It can be said in general that traditional, primitive technology is the norm of agricultural production in Haiti. The hoe and the machete are often cited as symbolic of the level of technology at the farm level. Reality is a bit more complicated, but the level of technology employed in rural areas almost universally acts as a serious constraint on agricultural production. Even animal traction is almost never used in field work. Purchased chemical or biological inputs are almost unknown. Only about 46 percent of the land suitable for irrigation is actually irrigated (Roe 1978). Bauman's 1960 observations regarding the inefficiency of irrigation practices are still valid: the need for proper land preparation to gain maximum benefit from irrigation, he observed, is not generally well understood. In fact,"irrigation practices are often injurious to the crops" (Bauman 1960:3).

There are some indications that superstition may play a role in perpetuating the primitive level of agricultural technology in Haiti (see Chapter 3.H), but the scant information available does not point to this as a major problem.

Bauman noted in 1960 that composting, rotation, pruning, seed selection, and avoidance of burning are not at all common. More recently, however, Palmer (1976:167-172) reports that some of these practices have been adopted in the Belladère area in response to population pressures. Also, an anthropologist now working near Fonds-des-Nègres has noted that at least some small farmers recognize, for example, that there are different varieties of corn and that it is beneficial to plant the appropriate seed. This has always involved a

choice among local varieties rather than improved seeds.

In the following paragraphs, we present a brief description of some of the techniques used in the production of selected crops and livestock.

a. Food grains. Rice is harvested nearly continuously throughout the year, then milled by hand after sun drying. The literature has noted some efforts to control infestations of rats and stink bugs in rice fields with a somewhat higher level of technology than is typical of Haitian agricultural production. Bonnefil (1954) describes rather sophisticated efforts to control rats in the Artibonite region (see Chapter 4.B.3),and there have been recent indications that nicotine sulfate is being used fairly extensively to control stink bugs in the same area.

b. Mangoes. Mangoes grow naturally throughout Haiti. They are grown in subsistence settings with little explicit cultivation (JWK 1976c). Very few farmers use fertilizer, insecticides, and other sprays to control pests and diseases; pruning, grafting, spacing, and other techniques of rational management likewise are almost unknown. "The resistance of the mango tree, particularly its adaptability to long hot dry spells and dry soils, accounts for its persistence in Haiti" (JWK 1976c:2), not effective maintenance technology.[31/]

Harvesting is accomplished most often either by shaking the branches to make the fruit fall or by knocking the fruit off the tree with long sticks. Both methods result in a high percentage of bruised fruit,

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31/ There is one exception to this rule. The Mme. Francis variety is cultivated by a few individuals in a number of small orchards near Port-au-Prince because of its high commercial value.

causing rapid decay (JWK 1976c:16);shaking the tree also results in the loss of immature fruit.

c. Coffee. Most of Haiti's coffee trees are on smallholdings. They frequently are intercropped with corn, sorghum, beans, or bananas. Much of the coffee grows wild in the mountains and is simply picked by farmers (JWK 1976a). The coffee trees tend to be too overcrowded, too old[32/], and too shaded. Improper cultivation practices cause erosion, thereby exposing the tree roots. Failure to weed properly results in the loss of valuable (and scarce) soil nutrients. Overcrowding, underweeding, and overshading reduce flowering and, consequently, yields. Failure to use mulch (banana leaves, coffee debris, etc.) encourages soil erosion, and exposure of roots causes excessive moisture loss and thus a lighter coffee bean at harvest. Pruning of dead branches generally is not practiced (JWK 1976a).

Harvesting techniques are crude. "Farmers often rip the coffee cherries from the trees and break the stems" which would have produced the blossoms for the following year's crop. It takes 2 years for these broken stems to grow back (JWK 1976a:39).

The JWK study in 1976 reported that only about 3 percent of coffee growers used such inputs as fertilizers, insecticides, and pesticides, although perhaps 20 percent have some knowledge of fertilizer use. "Thus the fertility of the soil which produces coffee is very low as a result of centuries of cultivation with little replacement of the minerals and nutrients consumed by coffee trees" (JWK 1976:39). The AID-financed coffee program has had only a small impact on overall use of fertilizer.

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32/ Cherry yields tend to decrease after about 25 years. The average coffee tree in Haiti is more than 30 years old, and there are many more than 50 years old (reported in Roe 1978:59).

Growers often depulp their cherries before the drying process is complete, resulting in excess moisture. "This practice . . . reduces coffee quality more than any other factor" (JWK 1976a:32). Coffee processing generally is now reported to be worse than it was 10 years ago when about 3 percent of the coffee for export was rejected in the sorting process; now 10-15 percent is rejected.

d. Cotton. The level of technology employed in the production of cotton is about the same as that for other crops. Predominantly low-yielding varieties are grown; farmers tend to set aside their poorest land for cotton (JWK 1976b). The relatively few farmers using fertilizer have shown a growing tendency to replace ammonium sulfate with urea because urea provides a cheaper source of nitrogen. Unfortunately, as a result, less sulphur is being supplied to the soil. Sulphur, which is necessary for high cotton yields, is normally found in the soil's organic material. It is deficient generally in Haiti because of soil depletion, erosion, and burning; it is particularly deficient in the poor soils on which cotton is usually grown.

Probably the most important technical limitation in cotton production at the farm level is the almost complete absence of insect controls (Ward 1975; JWK 1976b). The most damaging insect is the boll weevil (Anthonomus grandis). The JWK cotton study (1976b:22) lists 2 basic ways to control--or at least attack--the boll weevil problem: (1) pulling up and burning the cotton plants after each harvest and burning all field debris and other plants as well to restrict the weevil's habitat, and (2) applying insecticides. The first is within the technical competence of all farmers but is rarely practiced. Ward (1975) points out that to be effective it must be practiced by virtually all farmers in a given area. The literature points to no example of this being done. Application of

insecticides is too expensive for small farmers to use.

e. Sisal. There are two categories of sisal producers in Haiti: small peasant farmers and large plantation owners. "The large sisal plantations exploit their fields using a high level of capital . . . and modern techniques of production. The latter include observing optimum plant spacing and plant population per hectare" (JWK 1976e:9). The sisal produced is processed by machine.

Small sisal producers use very primitive growing and processing techniques. "They use little capital and no agricultural inputs such as fertilizers. Their sisal is used for fencing or for separating one crop from another" (JWK 1976e:12). Small producers usually process their own sisal by hand, using one of two methods. The first uses a simple tool called a tille--basically a "wooden handle attached to a metal toothed blade. The sisal leaf is attached to a tree where the processor scrapes it with the tille. This process is very slow and tedious. One man can process only 6-8 kilos of fiber per 8-hour day" (JWK 1976e:12). The process yields a low-quality fiber since the pulp which is not removed adheres to and stains it. The second method involves soaking the leaves in brackish or salt water until the flesh is partially decayed, and then beating the fiber out with a wooden stick. The product resulting from this process, known as battu, is of very poor quality, has a foul odor, is badly discolored, cannot be dyed, and is suitable only for locally used rope or other uses where odor is not a problem (U.S. Embassy/Haiti, Annual Sisal Report, 1977).

Roe (1978) cites Anglade (1974) as noting that small producers tend to over-harvest and under-harvest sisal in response to price fluctuations. Both are detrimental to sisal production. When sisal prices rise the

plant is over-harvested, which decreases the quality of the sisal harvest because younger, less mature leaves are cut. When sisal prices are low, leaves are allowed to over-mature, slowing the development of younger leaves and again decreasing harvest quality.

In summary, the level of technology employed by small sisal producers results in a lower quality product which remains in Haiti, while plantation-produced sisal tends to be exported.

f. Sugarcane. Sugarcane generally is produced on small plots, with little or no use of chemical or biological inputs. Failure to irrigate sugarcane (i.e. to maintain irrigation systems) results in yields of 35 tons per hectare as opposed to 49 tons under irrigation. Both these figures reflect Haitian production levels; over 100 tons per hectare are produced in other countries (Roe 1978:81). Since cane is purchased by the pound rather than by the yield of sugar from the cane, there is no economic incentive for producers to utilize high sugar-yielding varieties. Consequently, Haiti's sugar recovery rates are "nearly the lowest in the world" (Roe 1978:82). Sugarcane production technology comes close to the "hoe and machete" stereotype.

g. Livestock. Roe (1978) observes that the livestock sub-sector (cattle, sheep, goats, swine, poultry) is probably the least developed among the sub-sectors of Haitian agriculture. Generally, no fencing, quarters, or forage is provided; most animals forage for available feed--frequently from ropes tied to trees or stakes. Roe cites malnutrition and undernutrition as frequent problems in all species of livestock.

The JWK meat study (1976d) describes the 4 grazing systems observed in Haiti: free roaming, staking out, herding on open ranges, and fenced pasture. Only the first 3 are practiced by the vast majority of Haitian peasant farmers. The various systems are briefly discussed below.

1) Free roaming. Animals roam freely in populated areas, sometimes with triangular collars about their necks to prevent them from entering private properties. (The collars are too wide to fit through narrow openings.) The animals are not tended and eat whatever they can find. This system encourages the spread of contagious diseases, prevents effective selective breeding programs, and limits the number of animals a farmer can keep because of the Rural Code prohibition against free roaming animals.

2) Staking out. Animals are tied to a stake or tree and can forage only in the area they can reach. This system is widely practiced by small farmers and is especially common in the mountains.

3) Herding on open ranges. Animals run loose on large savannas or in the hills, grazing together under the supervision of a herder. Generally, cattle are grazed on the savannas and goats in the hills. The quality of the forage is usually poor.

4) Fenced pasture is utilized only on large ranches.

Hogs are occasionally raised rationally in pens with straw shelters to protect them from weather extremes. Some pens are even equipped with concrete floors, fresh water, and runs to fresh pasture. The vast majority are not. Most often, where they are used, pens are unsanitary and the hogs frequently undernourished and diseased (JWK 1976d).

Chickens are most often allowed to run loose in yards and to eat whatever they can find. In the rare cases where chickens are raised in coops, the conditions are very poor and the mortality rate is high (JWK 1976d).

Hay preparation and storage is not practiced by small farmers (JWK 1976d). "The need to make and store hay is particularly evident in the

Central Plateau area. Here the most serious bottleneck for livestock expansion is the lack of food and water for animals during the dry season" (JWK 1976d:19). Peasants sometimes sell undernourished cattle to avoid losing them to starvation, or drive their herds to areas where water is more plentiful (the animals losing weight and value in the process), or even carry water to the animals. "Thus, peasants sometimes limit the number of animals they keep to their ability to carry water to them (JWK 1976d:37). Cattle that remain on the dry, overgrazed areas occasionally succumb to feed and water deprivation or are destroyed, with the remaining grass cover, by brush fires. The cattle lost in this way are frequently the higher-producing, foreign strains which are more susceptible to stress. "When rain returns the grass springs up again. The farmer turns his animals out to pasture and the cycle begins again" (JWK 1976d:20).

Some wheat bran is purchased by farmers for livestock, particularly for swine. The consumption of wheat bran is low, however, both because of the primitive character of livestock raising in Haiti and because the price is too high for poor farmers (JWK 1976d).

Roe (1978) observes that rice bran is fed to livestock, particularly to swine, by rice farmers. The JWK study points out, however, that rice bran is high in silica, which reduces its feed value for pigs; swine rations should not exceed 10 percent silica. Many pigs in the Artibonite are fed only rice bran and consequently are quite thin. Large cattle owners around the Port-au-Prince area buy rice bran and straw as cattle feed.

Some grain is fed to chickens and pigs by small farmers, but the shortage of grain, particularly locally produced corn and sorghum, for human consumption does not leave enough for feeding to cattle, goats,

or sheep (JWK 1976d).

Citrus peel is used for cattle feed. The dried rind discarded by manufacturers of essential oils is picked up by small farmers and fed to cattle. The dried pulp left over after coffee cherries are pounded to separate the beans could be used as a high quality cattle feed, but it is not so used--apparently because of general ignorance of its high feed value (JWK 1976d).

There is limited consumption of cottonseed meal by livestock. The sugarcane variety most prevalent in Haiti is hard and difficult for animals to eat. "In some countries the hard outer layer of the cane is removed and the soft intersection is used for amimal feed [but] sugar cane is not processed this way in Haiti" (JWK 1976d:29). Sugarcane tops, leaves, and residue have about the same food value as grass, however, and are used as animal feed. About 8,000 oxen in the Plaine des Cayes are fed mostly on cane by-products (JWK 1976d:29). Molasses, however, is not used as animal feed.

Haitian peasants use several minor products as animal feed: mangoes for pigs during the peak season, overripe avocados, royal palm seeds for pigs and cattle, occasionally sweet potatoes when they are available, and breadfruit (JWK 1976d:31).[33/]

Natural selection rather than controlled selective breeding has produced the Haitian breeds of cattle (Creole), hogs (Cochon Planche), and chickens. They are all low producing and of poor quality, although disease resistant (Roe 1978). Selective culling is not generally

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33/ An anthropologist working in the Fonds-des-Nègres area has been told by older residents that they remember their fathers raising sweet potatoes and other feed specifically for swine. Pressure now on the limited land available for food production, they say, has eliminated this practice.

practiced and frequently there are too many males (Roe 1978).

"Animals are slaughtered in Haiti with little regard to age or sex. Little or no attention is paid to selective breeding to improve the species" (JWK 1976d:56). Haitian peasants most often prefer to slaughter sick animals rather than try to provide medical care for them. In any case, medical care frequently cannot be found (JWK 1976d). Nothing has been noted in the literature on traditional local remedies for animal diseases.

Farmers preserve some meat by drying. Lacking adequate drying facilities, they simply expose the meat to the sun. In almost all cases the meat is dried untreated, reducing the quality of the finished product. Many important physical factors are ignored--e.g. the comparative humidity of the air and that of the surface of the meat, the size of the meat pieces, their heterogeneity, the rate of thermal exchange, and other factors (JWK 1976d). Smoking eliminates most of the germs which contaminate meat. The smoke itself is a mixture of gases and chemicals (waxes, resins, phenols, formols, acids, etc.) which penetrate and conserve the meat. Smoking was practiced in the early colonial period in Haiti but is not widely used today (JWK 1976d).

## 2. Marketing Activities

Like production technologies, marketing activities seem to be fundamentally the same for nearly all Haitian farm families. Marketing channels differ by crop, but there appear to be few significant differences according to geographic region or size of farm (except for the few plantations).

Contrary to what might be expected in view of Haiti's very low level of development, nearly all farm families are market-oriented to a significant degree. It is estimated, for example, that at least half of all farms produce coffee, Haiti's principal export.[34/] There is also considerable small-farm production of other export crops, including sugar and sisal. In addition, there is a high degree of commercialization for food grains, fruits and vegetables, and other domestic crops.[35/] Livestock markets, too, are active.

Roe (1978:9) notes that the production technologies and characteristics described above have 3 major implications for marketing processes. First, dispersed production by small producing units generally requires complicated, labor-intensive sale and assembly systems for inputs and products. Because of the large number of decision-

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34/ IHPCADE's National Coffee Plan, 1969-76, listed 384,000 coffee farmers, 65 percent of whom had less than 2.6 hectares (2 carreaux); 89 percent had less than 6 hectares (see Roe 1978:60). There was only one large producer, who had 155 hectares. The reported number of coffee producers with more than 6 hectares, however (42,624), is substantially higher than the number of all farms of this size reported in the 1971 census (see Table 3.9).

35/ It has been estimated that 70 percent of basic crop production is marketed (USAID 1974:28).

makers, these systems require substantial information flows to function effectively.[36] Second, the large number of producers results in wide variations in the quality of commodities produced and sold. Thirdly, production of both export and domestic-consumption crops often requires a dual marketing system. One part, based on traditional channels, may face efficiency problems; the other, based on modern or direct channels, may face problems of imperfect competition.

There are 2 basic categories of markets in Haiti: public markets and internal markets. Prior to September 1974 all goods sold in public markets were taxed. This encouraged the development of internal markets, where "private" sales occurred between producers and intermediaries, among intermediaries, and between final consumers and suppliers. There appears to have been no systematic study of the effects of the tax abolition on public and internal markets, but an increase in public-market activity is believed to have occurred (Girault and La Gra 1975).

A survey of 519 public markets, representing an estimated 70 percent of the national total, classified these markets as being either urban, regional, or semi-rural (La Gra, Fanfan, and Charleston 1975).[37] Of the 34 urban markets surveyed, 24 were in the West, nearly all of them in the Port-au-Prince area, as may be seen in Table 3.11.

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36/ Moral (1959) estimated that 50,000 women and 15,000 men were engaged in marketing. Mintz (1961a, reprinted 1967:99) believes that these figures are too low, excluding children under 14 and part-time, unlicensed intermediaries.

37/ For descriptions of markets in particular regions, see Steverlynck (1976), for the Vallée des Trois Rivières; Harari and Mathelier (1974), for the Cul-de-Sac; Werleigh and Duplan (1975), for Cap Haitien; and S. and J. Comhaire-Sylvain (1964) for the Kenscoff region.

Table 3.11

Public Markets by Department and Type, 1975[a]

| | North-West | North | Arti-bonite | West | South | Total |
|---|---|---|---|---|---|---|
| Regional | 6 | 5 | 10 | 19 | 19 | 59 |
| Semi-rural | 29 | 75 | 57 | 163 | 102 | 426 |
| Urban | 2 | 2 | 2 | 24 | 4 | 34 |
| Total | 37 | 82 | 69 | 206 | 125 | 519 |

Source: LaGra, Fanfan, and Charleston (1975).

[a]These data refer to about 70 percent of all agricultural markets in Haiti.

Regional markets are those where most sales are between producers and intermediaries. Generally found along major routes, but not always near large urban markets, regional markets are also assembly points for goods obtained in semi-rural markets. The latter are markets where almost all transactions are between local producers and consumers.

Marketing is a time-consuming activity at the farm level, particularly for women. As noted in Chapter 3.F.3, Schaedel (1962:77) estimated that the average rural woman in the early 1960s spent 100 days a year in marketing activities. This estimate may be somewhat high, but the situation today has changed little from when it was made.

To provide an indication of farm-level marketing processes, we may describe in some detail the marketing of food grains. Space limitations dictate that other crops be discussed only briefly.[38/]

Rice, produced mainly in the Artibonite, is harvested almost continuously. Less susceptible to damage from pests and humidity than other major grains in Haiti, it is stored on the farm--following sun drying and hand milling--for relatively short periods, seldom exceeding 6 months. The 3 other major grains are produced seasonally, with December-February harvests,giving rise to greater seasonal price variations and a consequent incentive for storage. Sorghum is stored for up to 10 months (Dorville 1974), corn for 6 months, and beans for 2 months. Corn and sorghum heads traditionally

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38/ These descriptions are based on Roe's detailed evaluation of the literature on Haitian marketing (1978:Ch. III-IV).

are stored by bundling husk-protected ears and suspending them by wires, ropes, or poles attached to or supported by trees. Rats are the principal cause of damage to rice, corn, and sorghum, while mildew and insects are major concerns with beans (Dorville 1974).

Beans, despite their short storage life and sensitivity to drought, salinity, and wind, are widely grown as a cash crop (IICA 1973). A detailed study of bean marketing in the Cul-de-Sac (Murray and Alvarez 1973), where grain marketing is said to be typical of conditions elsewhere in Haiti (Girault and La Gra 1975), identified 3 classes of buyers: (1) local customers, the least preferred by farmers because newly harvested supplies saturate local markets and drive down prices; (2) regional markets, to which farmers' wives usually transport beans for sale to intermediaries; and (3) local buyers, who absorb more than half the beans marketed (Duplan and La Gra 1974; Girault and La Gra 1975; and Murray and Alvarez 1973).

Local buyers of beans (and other crops) are of 2 types. The kômesant is a free-lance intermediary who may act as an arbitrageur between farmers and other intermediaries or earn a fee for finding a buyer offering a competitive price. Higher in status is the secrete, a specialized agent who purchases and assembles grain at the farm level on behalf of the Madam Sarah, the intermediaries who dominate the wholesale-retail portion of the marketing channel (Mintz 1964).

Rice buyers are of a different type, with the principal buyers resembling the kômesant or the less capitalized and mobile Madam Sarah. Locher (1974) refers to them as "local Madam Sarah". These intermediaries purchase rice just before harvesting, which they do themselves. The nextmost frequent form of rice marketing is direct sale to the wholesaler (often a local rice mill operator) after the

harvest. Competition at the farm level reportedly is intense (Girault and LaGra 1975), as it is for beans, with the local Madam Sarah having an advantage because she does the harvesting, accepts the risk associated with her yield estimate, and puts cash in the farmer's hand sooner than the wholesaler.

There are no data on numbers of rice mills and their capacity, but the existing level of marketings is handled without difficulty. If production expands significantly, though, milling capacity may prove to be a bottleneck.

Little information is available on corn and sorghum marketing, though it appears to resemble that for beans and rice, with the grain typically purchased after the harvest (Girault and LaGra 1975; Sorenson and Chung 1973). Competition is again reported to be keen, with wholesalers in a better competitive position than those purchasing rice.

Marketing channels for vegetables are generally less complex than those for food grains. Most vegetables are grown near urban markets, making it possible for marketing to be undertaken principally by family members, with local Madam Sarah playing a lesser role. Given their high perishability, vegetables other than potatoes and dried onions do not appear to be stored.

An estimated 80 percent of domestic fruit marketings are made by farmers directly to consumers. In fruit-deficit areas, such as the markets in Port-au-Prince and Cap Haitien, the Madam Sarah and their secretes are important intermediaries, particularly for seasonal fruits such as mangoes and avocados. Growers can also sell to truckers, whose better-packed and thus less-damaged fruits command a price premium in urban markets and enable the truckers to outbid the Madam Sarah.

Some mangoes are exported, mainly by 17 growers who have formed an exporters' association (JWK 1976c).

Livestock marketing channels have not been systematically studied. Farmers may (1) sell animals in local markets, (2) do their own slaughtering and sell the meat, (3) sell to intermediaries, or (4) sell directly in urban markets. Animals are transported on the hoof.

Cotton was exclusively an export crop before 1947, but now it is destined for the local textile industry, which since 1966 has also had to rely on imports. Small farmers with 1-2 hectares dominate production, which is sold at a regulated price to the Institut de Développement Agricole et Industriel (IDAI). The low price paid by IDAI has discouraged production, which has been declining.[39/]

Coffee, Haiti's principal export, may be sold by farmers to (1) unlicensed "speculators" (brokers), (2) licensed speculators, (3) local consumers, and (4) local coffee washing factories, including those owned by cooperatives, which recently were permitted by IHPCADE to purchase non-members' production (Roe 1978:65). The washing plants purchase only cherries, which must be delivered within 18-24 hours of picking. Only 8-12 percent of the coffee marketed is in this form.[40/] The remainder is dried and sold as beans. If drying is done on an earthen surface, the beans absorb various tastes and must be sold at a discount. Quality is also affected by premature pulp

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39/ IDAI pays farmers 14 cents per pound. Given a world market price of 65 cents, Roe (1978:54-55) calculates roughly that IDAI should be able to pay farmers 20.8 cents per pound.

40/ JWK (1976a) reports 8 percent; LaGra, Fanfan, and Charleston (1975) report 12 percent. The low percentage of washed coffee has been attributed to (1) poor transportation, (2) the tendency for farmers to store coffee as a form of savings, (3) restrictions prohibiting speculators from buying or selling wet coffee, and (4) insufficient price differentials to producers (Ester, Lambrechts, and Fridman 1977).

removal, before the beans are sufficiently dried. Unlicensed coffee speculators reportedly specialize in lower quality beans, paying a relatively low price. However, they buy at the farm level and reportedly provide credit not available other sources (JWK 1976a).

The 28 principal exporters have formed an association, allegedly to control "excessive" price competition, but there is no conclusive evidence that this has been effective. In regressing monthly farm-level prices on the FOB export price during 1970-74, Roe (1978:71) found that almost all the variation in farm-level prices ($R^2$ = .994) could be explained by changes in the export price, suggesting that exporters do in fact pass export price changes back to the farm level. To the extent that competition is imperfect, this may be limited to an agreement by exporters to retain a fixed share of the FOB price, as well as to some local monopoly power.

Sisal is produced on 6 plantations with a total area of about 7,920 hectares, as well as by numerous small farmers who together produce more than half the national output (Fatton 1975). The plantations are vertically integrated through exportation, while for small farmers marketing resembles that of coffee and is likewise controlled by IHPCADE.

Sugar marketing is controlled by the Régie du Tabac, which regulates the price paid to producers. This price was fixed at $4.10 a ton in 1961; after 12 years at this level it was raised to $5.10 in 1973, $6.10 in 1974 and $9.00 in 1975.[41/] Since cane is purchased by the pound instead of sugar yield, there is no incentive for farmers to maximize sugar yields or adopt higher yielding varieties.

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41/ The corresponding retail prices (per pound)were 8, 10, 14 and 15 cents (reported in Roe 1978:82).

Little information is available on the marketing of cocoa, for which a single buyer has monopoly rights. This most likely has been a major reason for the decline in production, which also has been caused by the poor technology employed.

There is also a lack of information on input supply channels. As we note in Chapter 5.C.4, there is no good information on how the relatively few input suppliers conduct their business or whether they provide production credit. Farmers appear to obtain most of their inputs with credit provided by public agencies or private processing firms, though cash grants are also available for some crops. Poor transportation probably raises considerably the cost of inputs outside the Port-au-Prince area, often making their use uneconomical. Other factors which affect input marketing--but likewise to an unknown degree--are illiteracy, lack of extension services, product market uncertainties, and lack of institutional credit.

## E. INCOME LEVELS AND INCOME DISTRIBUTION

### 1. Per Capita Income Estimates

As noted in Chapter 1, the World Bank estimated per capita GNP in 1975 to be $180. In comparing this figure with other estimates of per capita income, one must be careful to distinguish between GNP and other measures of income. Sometimes, the gap between rural incomes and the national average is exaggerated because estimates of the former tend to be based on personal income (or disposable income), while the national figure used for purposes of comparison is that of GNP. 42/ It is also necessary to take into account the year for which a particular estimate is made, since current dollar figures have been rising rapidly with inflation.

Bearing in mind these warnings, let us now look at some other estimates of per capita income in Haiti, particularly those which refer only to rural areas or which make comparisons between urban and rural areas. The World Bank itself (IBRD 1976:Vol. II, Table 1.4) makes the following calculations of labor income per capita, based on unpublished

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42/ The difference between GNP and personal income in Haiti is difficult to determine. The World Bank (1976: Vol. I, p. 6) estimates that labor income accounts for 70 percent of the GNP, while depreciation accounts for 20 percent and profits, 10 percent. Only profits from private enterprises, though, are received as income. These data suggest that personal income might be approximately 75 percent of GNP. The depreciation estimate, however, seems too high, and even after also deducting indirect business taxes from GNP, personal income might well be approximately 85-90 percent of GNP.

data from the 1970 socio-economic survey (Haiti, IHS, 1975):

| | |
|---|---|
| National average | $63 |
| Rural areas | 55 |
| Urban areas | 90 |
| Port-au-Prince | 118 |

The national average of $63 is only 59 percent of the estimated GNP per capita in 1970 ($107), a figure lower than might be expected. [43/] The ratio of urban income to rural income, 1.64:1, is significantly lower than the average for Latin America, which in the late 1960s was about 2.5:1. If all property income were included in the total, [44/] the ratio would undoubtedly be higher, but not a great deal so.

A very different picture is presented in the Ministry of Agriculture's 5-Year Plan for 1976-81, which reports a ratio of urban to rural income of 4.43:1 (Haiti, DARNDR, 1976:22):

| | |
|---|---|
| National average | $165 |
| Rural areas | 60 |
| Urban areas | 266 |

These data presumably refer to 1975 or 1976; the precise income measure used is not clear, but the national figure is not too much lower than the World Bank's 1975 GNP estimate of $180. The source of the data is not clear. The Plan also reports rural income figures obtained from a study in the Dubreuil irrigation district in the Plaine des Cayes in the South. These data show per capita income to be $80 in the irrigated areas but only $30-40 in the contiguous hillside areas. Again, there is no information on the source, year, or income measure used.

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43/ As noted in the previous footnote, the World Bank estimated that labor income alone accounted for 70 percent of the GNP.

44/ Income from professional services is included, but profits on capital or on intermediation are not (IBRD 1976: Vol. I, p. 8).

DARNDR's estimate of an average rural income of $60 for (roughly) 1975 is significantly lower than that of the World Bank, which--using Haitian government data--calculates a 1975 (?) figure of about $80 for the poorest 90 percent of the population [and, by implication, about $95 for the entire rural population] (IBRD 1976: Vol. I, p. i). 45/ When one considers that the income measure the World Bank uses is a lower percentage of GNP than that used by DARNDR, the gap between the 2 estimates--nominally, $95 and $60, respectively--widens to a ratio of approximately 2:1.

As if this gap between different rural income estimates were not wide enough, the Haitian government's National Transport Study (Haiti, DTPTC, (1977) uses a per capita income figure of only $40, presumably for 1975 or 1976 (Haiti, DTPTC, [1977]: Vol. VI [Draft version], p. 12). The source of this estimate is not indicated, nor is it clear what measure of income is being used.

We thus find that 3 units of the Haitian government--the IHS, DARNDR, and DTPTC--use widely different estimates of rural per capita income for 1975. One is tempted to add the 3 figures and then divide by 3, but we are probably dealing here with different measures of income; moreover, it is not entirely clear that all 3 figures refer to the same year. To put some order into this situation, it is useful to make the following assumptions:

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45/ The $80 figure seems to be based on the 1970 socio-economic survey, which as indicated above yielded a rural per capita income figure in that year of $55 (in 1970 prices). The lowest 90 percent of rural income earners are estimated to have had a per capita income of $45 in 1970; this was assumed to be unchanged in real terms in 1975, but because of inflation the figure in 1975 prices is about $80.

1. The World Bank's estimate of 1975 GNP per capita--$180--will be accepted.

2. The rural-urban population split in 1975 is 77 percent-23 percent.

3. Average income in urban areas is 4 times average income in rural areas. 46/

4. Personal income is 90 percent of the GNP.

On the basis of these assumptions, we can obtain the following estimates of GNP and personal income, in rural and urban areas, for 1975:

| | Per capita GNP | Per capita personal income |
|---|---|---|
| National average | $180 | $162 |
| Rural areas | 107 | 96 |
| Urban areas | 428 | 385 |

The $96 figure can be considered a good ball-park estimate of rural personal income per capita in 1975, expressed in terms of that year's price level and based on a conversion of gourdes to dollars at the official exchange rate.

2. Non-Farm Income

Many rural Haitian families depend on non-farm income--in cash or in kind--for survival. Some rely mainly on food and services provided by private and voluntary agencies. A relatively small number produce handicrafts in their homes. Some farmers obtain employment as day

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46/ This is a reasonable assumption of one accepts the estimate that labor productivity in agriculture was approximately one-fourth that in non-agricultural activities in 1975, compared with one-third in 1975 (see Table 1.15).

laborers during the slack season. As noted above, Schaedel (1962:77) estimated that rural women spent an average of about 100 work-days a year in marketing; their earnings often make a significant contribution to family income. For the country as a whole, the World Bank recently estimated (IBRD 1976: Vol. I, p. 4) that 10-20 percent of Haiti's farmers had other jobs. Evidence to support these figures, though, is difficult to find. 47/

It is somewhat easier to find evidence on income earned from non-farm activities. For various years between 1950 and 1960, Schaedel (1962: 82-87) found that non-farm family income in 5 communities ranged from a mere $5 in Villard (Artibonite) to $135 in Fond Parisien (West) (see Table 3.12). As a percentage of net cash income, non-farm income accounted for as little as 1 percent and as much as 46 percent. In 1976, as noted earlier, Pfrommer et al. (1976:248) found that income from non-agricultural activities accounted for 49 percent of the total income of 243 farm families in the Northwest. Little is known, however, about the types of jobs which contribute most to this supplementary income.

3. Regional Income Differentials

Evidence on regional income differentials is sketchy and largely qualitative. There is a consensus that Haiti's poorest regions are the islands and the Northwest, the latter region defined broadly to include not only the (old) Northwest Department but also the arrondissements of Gonaives in the Artibonite and Le Borgne in the North.

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47/ A survey of 42 farmers in the Desarmes area in the Artibonite found that 22 percent also had non-agricultural employment; some worked as day laborers in agriculture, but it is not clear how many. In addition, 4 percent of the women had outside agricultural employment, while 22 percent were engaged in marketing (Riaño-Serrano 1975:23).

Table 3.12

Income of Typical Farm Families in Five Areas, Various Years, 1950-1960[a]
(U. S. dollars)

| Area: | Fond Parisien | Villard | St. Raphael Plain[d] Before Irrigation | St. Raphael Plain[d] After Irrigation | Camp Perrin Valley | Mersan and Laborde |
|---|---|---|---|---|---|---|
| Department: | West | Artibonite | -----North----- | | South | South |
| Farm size (has.): | 0.66 | 0.66 | -----2.80------ | | 0.45 | 1.10 |
| Date of Study: | 1950[b] | 1960[c] | 1951 | 1953 | ? | ? |
| Cash Income | $388 | $636 | $505 | $867 | $310 | $486 |
| Crops | (179) | (623) | (429) | (828) | (113) | (309) |
| Livestock | ( 74) | ( 8) | ( 66) | ( 29) | (131) | (132) |
| Supplementary | (135) | ( 5) | ( 10) | ( 10) | ( 66) | ( 45) |
| Less: Farm Costs (Cash) | 92 | 76 | 170 | 338 | 31 | 130 |
| Net Cash Income | 296 | 560 | 335 | 529 | 279 | 355 |
| Family Cash Expenditures | 238 | 321 | 302 | 296 | 276 | 270 |
| "Net Profit" | 58 | 239 | 33 | 233 | 3 | 86 |

Source: Schaedel (1962:82-87).

[a]The presentation of the data has been rearranged and the figures converted to the nearest dollar.

[b]Based on a survey of 574 low income families conducted by the IHS.

[c]Based on a survey of 130 families between Port Sondé and Deschapelles.

[d]This area is said to be not typical of the Northern Plain; the average farm size assumed here is actually above-average for the area.

The wealthiest areas are said to be the Plaine du Cul-de-Sac, immediately to the north and east of Port-au-Prince; the fertile Plaine de Léogane, also favorably situated with respect to the country's principal market; and the Plaine des Cayes in the extreme southwestern part of the country. Also relatively well off are said to be the irrigated rice-growing areas of the Artibonite Valley, the sugar-growing areas in the Plaine du Nord, the Anse-d'Hainault area at the western tip of the southern peninsula, the Plaine de la Grande Anse (Jérémie), and the fruit-and-vegetable growing area centered on Kenscoff in the mountains near Port-au-Prince. In general, the coffee-growing areas--found in many parts of the country--are considered to have above average income. Other areas are at or below the average because of poor soils, lack of irrigation water, poor access to markets, or other factors.

A study by Richard Schaedel (1962) provides some evidence of relative income levels in various parts of the country during the period 1950-60. Unfortunately, Schaedel was unable to complete the study before departing Haiti, and the editing by USAID/Haiti leaves some important questions unanswered regarding methodology and sources. It appears, though, that Schaedel relied both on existing studies and on the field research he and his collaborators conducted. Table 3.12 presents information for communities in 4 of Haiti's 5 Departments. These data show net cash income and cash expenditures for typical farm units in the communities studied. No estimate is made of the value of food produced and consumed on the farm, and in the absence of information on family size the data cannot be converted to per capita income figures. Schaedel's own interviews led him to conclude that the income

and expenditures reported in the studies summarized in Table 3.12 were "a little higher than a true country average" (p. 73). If we assume an average family size of 5, net cash incomes per capita in the 5 areas would be as follows:

| | Date | Current year prices | 1975 prices |
|---|---|---|---|
| Fond Parisien | 1950 | 59 | 139 |
| Villard | 1960 | 112 | 206 |
| St. Raphael (before irrigation) | 1951 | 67 | 148 |
| St. Raphael (after irrigation) | 1953 | 106 | 227 |
| Camp Perrin Valley | 1955? | 56 | 116 |
| Mersan and Laborde | 1955? | 71 | 147 |

These figures, which do not even take into account non-cash income, are considerably higher in real terms than what we have assumed for 1975. There are several possible explanations for this discrepancy, each of which may well be valid to a certain degree: (1) The areas surveyed in the various studies may be even less typical of their regions than Schaedel assumes. (2) Per capita income in rural areas may have declined since the 1950s. This is almost certainly true: for the country as a whole, real per capita income in 1975 was no higher than in 1960 and probably lower than in the mid-1950s; at the same time, per capita income in Port-au-Prince has clearly increased, implying a decline in the rest of the country, though not to the extent implied by the figures. 48/

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48/ Several researchers have asked farmers to compare past and present living standards. In the Northwest, 88 percent of the 243 families interviewed reported lower production from their plots compared with 5 years earlier, and 76 percent reported lower living standards (Gow 1976:13, 15). Gerald Murray (in LaGra 1972: Annex 4, p.6) reports that members of the Bas Boën cooperative felt they had not recovered the living standards they enjoyed prior to 1954 when Hurricane Hazel destroyed the area's mountain dam. Palmer (1976:77) reported that most people in Belladère felt that their living standards were declining and saw little hope for improvement. The IDB (1974:2) maintains that the gains from agriculture have been shifting from farmers to processers, intermediaries, and exporters. Earlier, Courlander had reported, on the basis of observations throughout the country, that living standards of the families he visited in 1932 and again in 1955 had declined almost without exception (1960:110-121). Schaedel (1962: 59-60) found that farmers in Plaisance, in the North, regarded the 1920s as the high point of economic activity in that area.

(3) Income was overestimated in the earlier studies and/or underestimated in recent studies. (4) The earlier studies may have been conducted in unusually favorable farm years. (5) Finally, average family size in the communities studied by Schaedel may have been greater than 5.

There are some surprises in the relative ranking of the various communities in Table 3.12. The communities in what reputedly are the wealthiest areas (Fond Parisien, in the Cul-de-Sac; the Camp Perrin Valley, Mersan, and Laborde in the Plaine des Cayes) have the lowest per capita income figures. 49/ Still, Schaedel's own research found similar figures in the Torbeck area in the Plaine des Cayes, which he regarded as relatively prosperous. Moreover, he found that farmers in the Camp Perrin Valley, Mersan, and Laborde produced more of their own food than those in Torbeck. 50/ Both Villard and St. Raphael, which have the highest figures, are also located in what are said to be relatively prosperous areas, though in the opinion of some observers less so than the Cul-de-Sac or Les Cayes areas. The high figure for St. Raphael is admittedly atypical of its region and the same is probably true of Villard.

In summary, the studies reviewed by Schaedel tend to confirm the conventional wisdom about which are Haiti's more prosperous regions; but they raise some questions--difficult to answer--about their relative ranking and the degree to which this might have changed since the 1950s.

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49/ Fond Parisien, though, is not in the most fertile part of the Cul-de-Sac.

50/ This "income," of course, does not appear in Table 3.12, where the data are restricted to cash income.

A study of 50 farm families in the Plaine des Cayes (Desplechin 1971) found "net per capita income" (presumably a measure of personal income) to be $68, apparently for 1970. This figure includes an imputed value for food produced and consumed on the farm, and in 1975 prices it amounts to $125. However, as indicated in the notes to Table 3.6, this study is biased in favor of higher income farmers, and the actual average for the Plaine des Cayes would have been lower.

A study of 243 households in the Northwest estimated that per capita income in 1976 was a mere $55; and for about 70 percent of the households it was less than $45 (Gow 1976:14; also reported in Pfrommer et al. 1976:2, 39). 51/ There was considerable variation, however, in per capita income in the 4 areas studied (Pfrommer 1976:248):

| | Per Capita Income | Percent Derived from Agriculture |
|---|---|---|
| Jean Rabel | $58 | 69 |
| Bombarde | 39 | 32 |
| Anse Rouge | 75 | 27 |
| Terre Neuve | 49 | 46 |

The low proportion of total income derived from agriculture dramatically illustrates the poverty of agricultural resources in the Northwest. Even more striking than the variations among the 4 areas studied were the differences in per capita income by degree of participation in Community Councils (CCs): $152 for households headed by CC committee members, $62 for households headed by rank-and-file CC members, and $38 for non-member households (Gow 1976:14). 52/

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51/ In the latter reference the $55 figure is erroneously compared with Haiti's per capita GNP; a more appropriate comparison would be with per capita personal income.

52/ The average household size of 6.9 persons is assumed to apply to all 3 groups.

Another area for which recent income data are available, at least on a partial basis, is the Vallée des Trois Rivières in the North. Surveys there found that farm income of the smallholders targeted by a proposed FAO project averaged only $80, or less than $20 per capita, a figure which rivals that of the poorest areas in the Northwest (Steverlynck 1976: x). 53/ Total family income of these households was not indicated but undoubtedly was very low.

Finally, data are available for the Bas Boën area in the Plaine du Cul-de-Sac, where considerable technical assistance has been provided since 1969 by the OAS, DARNDR, and the governments of West Germany, Israel, and the United States. A project report in 1975 (Haiti, DARNDR; OAS; and Mission Israéli 1975) reported a rise in incomes from $70-90 per capita to $150-200 per capita. 54/ More recent data, supplied by one of the advisors to this program, show that gross income per hectare from the groundwater-irrigated land in the program (187.5 has. in 1976-77) rose from $235 in 1974-75 to $615 in 1976-77. Farm units in the area average 0.8 ha., but farmers typically do not have all their land in the program. It must be remembered, too, that these are gross income figures. On the other hand, input costs are low (they are partially subsidized) and nonfarm-income is excluded. Personal income per capita is probably well over $100 for project participants.

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53/ The $80 figure presumably refers to 1975.

54/ It is not clear whether this is a nominal or a real increase.

In summarizing this section, it may be concluded that the impressionistic views concerning regional income differentials in Haiti are basically correct. Even in the relatively prosperous areas, however, personal income per capita is still very low in absolute terms. At the arrondissement or even the commune level, per capita income for the great majority of farmers is probably well under $200 in all cases, and usually under $100. Moreover, in most rural areas there is good reason to believe that real per capita income has been declining.

4. Income Distribution at the Regional Level

Only one estimate was found of rural income distribution at the sub-national level (Gow 1976:16). This estimate, for the distribution of income among farmers living near 4 villages in the Northwest, is based on a non-representative sample. The data show the distribution of family income, including an imputation for food produced and consumed on the farm. The sample of 243 farmers was not chosen to reflect the total population but rather to examine differences among Community Council (CC) members, CC leaders, and non-members. CC leaders, who as noted above have significantly higher incomes than members of the other 2 groups, are over-represented in proportion to their share of the total area population. The Gini coefficient calculated from these data--.54--thus overstates the degree of rural income concentration in this part of the country. 55/

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55/ The mean income of the various income categories is assumed to be at the mid-point, except for the lowest category (0-200), where the assumed mean is 150, and the open-ended category, where it is assumed to be 6,000.

5. Rural Savings

Surprisingly high "net profit" or savings rates are indicated in Table 3.12. With the exception of the Camp Perrin Valley, where it is only 1 percent, the savings rate ranges from 10 percent in St. Raphael (before irrigation) to 43-44 percent in Villard and in St. Raphael (after irrigation). Though one would not expect to see savings rates consistently this high, such figures are quite plausible in good years and are needed to offset losses in bad years. On the other hand, they could also be due to an overestimate of income and/or an incomplete accounting of cash expenditures.

It is widely agreed that Haitian farmers hold their savings principally in the form of livestock. A livestock inventory was taken as part of the 1950 census, and the results, by Department, are presented in Table 3.13 While these figures conceal considerable variation within each Department--and are now 28 years old--they are nevertheless worth examining. The Northwest, it can be seen, ranked lowest in both cattle and swine holdings per household in 1950, and next-to-lowest in poultry. The cattle and swine figures are probably the most significant for providing evidence of rural savings, and lend support to the belief that the Northwest is Haiti's poorest Department. Although the Northwest tied the Artibonite for first place in transport animals (horses, mules, and donkeys), these animals probably were not held so much for sale in the marketplace as to provide a means for carrying food, water, and people in an area where few alternative modes of transport are available. Similarly, the Northwest's top ranking in sheep and goats is not so much evidence of savings as of the inability of much of the land to support crops.

Table 3.13

Livestock Holdings per Farm Household, by Department, 1950

| | Northwest | North | Artibonite | West | South |
|---|---|---|---|---|---|
| Horses | 0.32 | 0.38 | 0.57 | 0.40 | 0.46 |
| Mules | 0.08 | 0.02 | 0.08 | 0.10 | 0.16 |
| Donkeys | 0.60 | 0.28 | 0.37 | 0.21 | 0.25 |
| Cows | 0.40 | 0.59 | 0.48 | 0.40 | 0.66 |
| Heifers | 0.16 | 0.25 | 0.24 | 0.84 | 0.30 |
| Calves & Bulls | 0.12 | 0.23 | 0.21 | 0.16 | 0.24 |
| Sheep | 0.34 | 0.10 | 0.10 | 0.03 | 0.09 |
| Goats | 3.25 | 1.12 | 1.70 | 1.26 | 1.72 |
| Swine | 1.41 | 1.74 | 2.33 | 1.92 | 2.03 |
| Poultry | 5.96 | 6.47 | 8.01 | 4.98 | 7.44 |

Source: Haiti, IHS (1955).

The Artibonite was the second lowest ranking Department in numbers of cattle per household, but it ranked first in both swine and poultry, as well as in transport animals, while occupying an intermediate position in sheep and goats. The West, which held first place in cattle holdings by a comfortable margin, had a low or intermediate ranking for other types of livestock. The South, on the whole, ranked relatively high in livestock holdings, while the North's ranking was relatively low.

In summary, the differences in livestock holdings among the 5 Departments are not, on the whole, particularly great; but if the data could be disaggregated to the arrondissement or commune level, considerable variation would undoubtedly appear. It would be useful to have recent data on livestock numbers at the Departmental level to compare with the 1950 figures, but unfortunately the livestock information obtained in the 1971 census is stored on computer cards which still have not been processed. Data on livestock numbers were obtained in the 1970 socio-economic survey, but only the national totals have been published. These figures are nevertheless of interest because they show a decline in average household holdings of most types of livestock (see Table 3.14). The two exceptions--mules and sheep--are both of relatively minor importance. For cattle, horses, donkeys, goats, and swine, the decline per household ranges from 11 to 24 percent; for poultry, it is a more modest 5 percent. If we regard livestock holdings as a proxy for savings (and turn a blind eye to problems with both the 1950 and 1970 data) these figures suggest that rural savings--and, by implication, rural income--have been declining.

Table 3.14

Changes in Livestock Holdings per Household, 1950-1971

| Type of Livestock | Livestock Numbers | | Percentage Change | |
|---|---|---|---|---|
| | 1950 | 1970 | Numbers | Per Farm Household |
| Horses | 254,982 | 221,100 | - 13.3 | - 24.0 |
| Mules | 55,705 | 71,715 | + 28.7 | + 10.3 |
| Donkeys | 163,032 | 170,787 | + 4.8 | - 11.4 |
| Cattle | 669,272 | 636,737 | - 4.9 | - 18.3 |
| Sheep | 51,783 | 105,503 | + 103.7 | + 74.4 |
| Goats | 890,056 | 842,602 | - 5.3 | - 18.8 |
| Swine | 1,136,057 | 1,140,643 | + 0.4 | - 13.8 |
| Poultry | 3,758,519 | 4,164,120 | + 10.8 | - 4.9 |

Sources: Haiti, IHS (1955; 1975b).

## F. EMPLOYMENT AND UNEMPLOYMENT

### 1. Unemployment and Underemployment as Welfare Indicators

It is important to emphasize that unemployment and underemployment are seriously deficient as indicators of well being. The data problems, both statistical and conceptual, have been reviewed in detail elsewhere (Turnham 1971; Zuvekas 1978:64-72), and many of them will become apparent as data for Haiti are discussed below.

Still, employment data cannot be dismissed as meaningless. From the standpoint of the individual, as we are frequently reminded now in the United States, open unemployment can be a very demeaning experience. In addition, it probably causes more social and political unrest than an equivalent amount of disguised unemployment. Furthermore, employment data can provide valuable information on macroeconomic behavior and on resource allocation between and within sectors (or geographic regions). There is still a case, then, for improving the employment data base.

### 2. Open Unemployment Rates

Open unemployment rates for the population 15 years and over are shown in Table 3.15. The 1950 estimate was a modest 2.4 percent, not an unusual figure in a country where 85 percent of the population was employed in agriculture. No data were provided on sectoral unemployment rates, or on rural-urban differentials, but open unemployment rates typically are lower in agriculture than in urban-based sectors of the economy.

This is indeed what we find in the 1970 socio-economic survey results, which show a 9.1 percent open unemployment rate in rural areas, but a startingly high 39.6 percent in urban areas. The overall open unemployment rate (14.7 percent) is much higher than that reported for 1950.

Table 3.15

Open Unemployment Rates of the Economically Active Population, 15 Years and Over, 1950, 1970, and 1971
(employment data in thousands)

| | 1950 | 1970[a] | | | | | 1971[c] | 1971[d] |
|---|---|---|---|---|---|---|---|---|
| | | National | Urban | Port-au-Prince[b] | Other Urban | Rural | | |
| Economically Active Population | 1,704.6 | 1965.7 | 362.1 | 230.9 | 131.2 | 1,603.6 | 2,024.2 | 2,003.1 |
| Employed | 1,664.4 | 1676.7 | 218.7 | 117.0 | 101.7 | 1,458.0 | 1,775.3 | 1,923.0 |
| Unemployed | 40.2 | 289.0 | 143.4 | 113.9 | 29.5 | 145.6 | 248.9 | 80.1 |
| Unemployment Rates: | | | | | | | | |
| National | 2.4 | 14.7 | 39.6 | 49.3 | 22.5 | 9.1 | 12.3 | 4.0 |
| Northwest | 2.2 | | | | | 8.3 | 11.9 | |
| North | 1.4 | | | | | 13.3 | 12.6 | |
| Artibonite | 1.1 | | | | | 13.7 | 6.5 | |
| West | 4.1 | | | | | 4.1 | 16.2 | |
| South | 1.5 | | | | | 13.1 | 9.9 | |

Source: Haiti, IHS (1975b), for 1970; ILO (1976:3), for 1950 and 1971.

[a] 14 and over.

[b] Metropolitan area.

[c] 1971 census.

[d] 1972 survey.

A slightly lower but still high open unemployment rate (12.3 percent) is reported in the 1971 census; no rural-urban breakdown, though, is available. A very different picture is found in the results of a survey conducted in 1972, which estimated that the national unemployment rate in 1971 was only 4.0 percent.

To evaluate the reliability of these data--some if not all of which have to be very inaccurate--would require a detailed study of the various survey methodologies, the definitions of employment and unemployment used, and the accuracy of the tabulations. It has not been possible to do that kind of evaluation. This writer would guess, however, that the lower estimates of open unemployment are closer to the mark. No evidence to support either the higher or lower figures was found, but the lack of comments on open unemployment in studies at the local or regional level is itself an indication that it may not be particularly high.

Table 3.15 also shows open unemployment rates by Department. Both the 1950 and the (high) 1971 estimate show the West to have the highest unemployment rate. Since this is the Department which contains the country's principal urban center, where open unemployment can be expected to be relatively high, the West's unfavorable ranking is not surprising. An open unemployment rate in 1971 of 16.2 percent, however, could be too high an estimate. At the other end of the rankings, the Artibonite had the lowest open unemployment rate in both 1950 (1.1 percent) and 1971 (6.5 percent). The rankings of the other 3 Departments shifted between the 2 years in question.

The 1970 data are not entirely consistent with the Departmental patterns shown by the 1950 and 1971 figures. In particular, the

Artibonite clearly would not enjoy the favorable ranking it has in the other 2 years. The West is shown to have the lowest rural open unemployment rate, but this favorable figure is offset by a 49 percent open unemployment rate reported for Port-au-Prince. The latter figure, however, is improbable.

3. Underemployment

Underemployment in Haiti is widely reported to be a serious problem. One (unidentified) source mentioned by USAID/Haiti (1974:14) has argued that the existing level of agricultural output could be produced by only 30 percent of the agricultural labor force, working full time. But as the USAID report noted, this estimate failed to take into account heavy seasonal labor requirements. In other words, removal of 70 percent of the economically active population in agriculture would cause a significant decline in agricultural output given the prevailing labor-intensive technology employed. Even now, labor shortages are reported in some areas during times of peak labor demand. 56/

Even higher estimates of rural underemployment are made by Haiti's Ministry of Agriculture (Haiti, DARNDR, 1976b). First, it is said that the economically active population is 70 percent underemployed because

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56/ Even the Ministry of Agriculture, whose own unrealistically high underemployment estimates we are about to discuss, notes that surveys in Cap Haitien and in the Cul-de-Sac have identified seasonal labor shortages. Seasonal shortages are also reported by Desplechin (1971:56), for the Plaine des Cayes; Dorville (1975: 19-20), for the country generally; Dorville and Dauphin (1974:24-25), for the Arrondissement du Cap Haitien; and the FAO (1975), for the Vallée des Trois Rivières in the North, an area where another FAO report (Steverlynck 1976:57) estimates the unemployment equivalent to be 78 percent.

the average number of days worked is "less than 120" per year (pp. 2-6). Later, the average number of days worked is placed at 100, including non-agricultural activities (p. 21); using the denominator apparently selected by the Ministry, this translates into an unemployment-equivalent rate of 73 percent. Finally, the Ministry settles upon an unemployment-equivalent rate of 78 percent, which, it is expected, will be lowered to 63 percent during the course of the 1976-81 Plan (p. 66).

There are a number of problems with the Ministry's estimates: (1) no account is taken of the seasonality of labor requirements, and it is thus not possible to determine how many individuals could be considered surplus laborers in the sense that they could be transferred to other economic activities without affecting agricultural production; (2) all members of the economically active population 10 years of age and over are assumed to have the same capacity for work; 57/ (3) some persons reported to be in the economically active population in rural areas are not really in the labor force--i.e., not actively seeking work; (4) the unemployment-equivalent rate refers to the entire economically active population in rural areas (including the 10.7 percent who work outside agriculture), so it is not clear what the unemployment-equivalent rate in agriculture alone is assumed to be; (5) no allowance is made for potential labor time not available because of poor health; (6) even if the economically active population were in perfect health, a "normal" work year of 365 days is a rather extreme assumption; (7) time spent in off-farm employment (including marketing) is almost certainly

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57/ We suggest below (see footnote 63) that the full-time adult male (15-54) equivalent is approximately 81 percent of the total economically active population.

underestimated; [58] and (8) time spent in general farm management and household management is very likely underestimated.

Taking just points (2), (3), and (6) into account, the unemployment-equivalent estimate can be reduced initially to 58 percent. [59] Further reductions, by considering points (5), (7), and (8), might also be substantial. (Taking (1) into account in making this kind of adjustment is conceptually awkward; and it is not clear how (4) would affect the unemployment-equivalent rate in agriculture).

Another estimate of the unemployment-equivalent rate, in this case specifically for agriculture, may be made by determining labor requirements per hectare for each crop and then multiplying these figures (in work-days) by area under cultivation to yield total labor requirements. The results are then compared with labor supply figures. The Instituto Interamericano de Ciencias Agrícolas estimates labor requirements in 1971 to have been 362,700 work-years. Comparing this figure with agricultural employment in 1971 (1,433,202) yields an unemployment-equivalent rate of 74.7 percent (ILO 1976:8-9). [60] (Actually, the

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[58] Schaedel (1962:77) estimated that the average woman in rural areas (not the professional intermediaries) spent 100 days a year in marketing activities in the early 1960s. This estimate may be too high, but there is no doubt that marketing is a very time-consuming activity. The marketing system today seems to be essentially the same as when Schaedel made his estimate.

[59] The labor supply figure lowered by 19 percent to cover point (2); the resulting figure is then reduced by 2 percent to cover point (3). Finally, the second adjusted figure is multiplied by .658, to reduce the "normal" work year from 365 days to 240 days, which we consider appropriate under the prevailing technology.

[60] The overall unemployment-equivalent rate would actually be even higher, since open unemployment is not taken into account in this calculation.

calculated unemployment-equivalent rate should be 72.4 percent; because of an error in addition, labor requirements were underestimated by 33,300 work-years). As the ILO points out, this procedure regards all of the economically active population as having the same work capacity; does not take into account non-agricultural work activity by 10-20 percent of the employed population; and ignores livestock, forestry, and fishing, which probably account for 10-15 percent of sector employment. Another problem is that the normal work-year assumed in making these calculations is 300 days, which we regard as too high. Finally, the IICA's estimate of land in crops is considerably higher (1,170,000 hectares) than the 1971 census figure for total land area in farms (863,520 hectares, which, admittedly, is too low). The ILO's own adjustments bring the unemployment-equivalent rate down to 48.8 percent (p. 16), 61/ and a case can be made for reducing it further by lowering the number of days in the work-year and by taking a skeptical view of the reported land area in crops (and hence labor requirements).

It is useful to compare these global estimates of rural or agricultural underemployment with evidence from studies of specific communities or regions. The following studies are helpful in this respect:

1. Desplechin (1973:14) estimated that farmers in the Arrondissement des Cayes worked an average of just 3 hours a day, or half of what is generally considered in Haiti to be a journée. It is not clear,

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61/ Taking into account the error explained above, the figure would be 46.5 percent.

however, whether this estimate includes time spent on general farm management and off-farm work. Nor is it clear whether periods of slack time are included in computing the average. These problems notwithstanding, there is reason to believe that labor is idle for substantial periods of time in the Plaine des Cayes. At the same time, it will be recalled, this area is reputed to have above-average income.

2. Dorville (1975:10-11) points out that the agricultural season in most of the country is only 6 months long. The major exceptions are said to be the northern part of the Massif du Nord and the northern part of the Southern Peninsula (from Anse-à-Veau to Dame-Marie). In the absence of irrigation, labor in other areas has no opportunity for agricultural work during half the year, except to the extent that time must be spent on general farm management and care of livestock, or opportunities are available for employment elsewhere in the country. Dorville criticizes unemployment-equivalent estimates of 75-80 percent for failing to account for seasonal variations in the demand for labor; but he offers no alternative estimate.

On the basis of surveys in the Cul-de-Sac and the South, Dorville (1975: Annex 7) estimates that labor requirements per carreau for 13 crops, with traditional methods of cultivation, range from 77 work-days for coffee and cacao to 258 for rice. It should be noted that there are some large discrepancies between these figures and the IICA figures

referred to above. [62/] Taking the unweighted average of 155 and multiplying it by the average farm size of 1.1 carreaux, we can very crudely estimate that labor required for crop production averages 170 work-days per farm household. In 1971 an average farm household had 2.04 full-time adult male-equivalent workers; [63/] each, we can assume, devoted 83 days (170 ÷ 2.04) to crop production. If we assume a normal work year of 240 days, this implies an unemployment-equivalent rate of 35 percent. However, no consideration has yet been given to livestock, other crops interplanted with the major crops, general farm and household management, and non-farm employment. How much time should be allowed for these activities is not at all clear, but again there is reason to believe that a substantial amount of labor time is idle. This does not mean, of course, that significant numbers of workers could leave agriculture without affecting production adversely.

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62/ Converting Dorville's figures to a per-hectare basis, we find that they exceed, or fall short of, IICA's estimates by the following percentages:

| | |
|---|---|
| Beans | +53 |
| Corn | +19 |
| Bananas | +40 |
| Rice | +90 |
| Coffee | -40 |
| Cacao | -40 |
| Sugar | -31 |

IICA's estimates are national averages, while those reported by Dorville are more restricted in coverage.

63/ Assuming an 8 percent unemployment rate in agriculture, the employment figure of 1,433,202 implies an economically active population in agriculture of 1,557,828. Multiplying this figure by .809 (as explained in footnote 75) yields a full-time adult male-equivalent of 1,260,283. Since there were an estimated 616,710 farm households in 1971, the average household had 2.04 full-time adult male-equivalent workers.

On irrigated land, where 2-3 crops a year can be grown, labor time spent on crops will be higher. Dorville (1975:30) cites a study in the Plaine des Gonaives showing labor requirements for several rotation patterns of 222-364 work-days per carreau. If we assume an average of 340 work days per carreau, the procedure described above yields an average of 167 work-days per full-time adult male equivalent worker, just taking crop production into account. However, Bulle (1968) reports that there are 4 members of the economically active population per arable hectare in the Plaine des Gonaives, suggesting that the average number of work-days for crop production there is well under 167 per worker.

3. Garnier (1976) provides some data for the fisheries sub-sector, which has been studied very little. He estimates that 10,000 full-time and 5,000 part-time workers are engaged in this activity, and that those who are employed full-time work an average of 200 days a year.

4. Riaño-Serrano (1975:22) found very little underemployment in the community of Desarmes in the Artibonite. Heads of household worked an average of 268 days annually on their own plots, and their spouses averaged 236 days. Some had off-farm employment as well (see below). The Desarmes area has irrigation, and the fact that two-thirds or more of those interviewed used fertilizer, insecticides, and improved seeds suggests that they are relatively prosperous.

5. Steverlynck (1976:57) estimated that the unemployment-equivalent rate in the Vallée des Trois Rivières in the North was a very high 78 percent, even assuming a modest work-year of 250 days. The FAO irrigation program proposed for this area was expected to reduce the unemployment-equivalent rate to 23 percent, mainly by taking land out of fallow and sharply increasing the production of plantains.

In summary, the micro-level evidence regarding underemployment shows considerable variation among areas. In those parts of the country where only one crop can be grown annually, much of the labor force is either idle or working only a small number of hours for perhaps half the year. Labor shortages, however, may occur in the very same areas at harvest time. Given this particular pattern of rural underemployment, one cannot argue that a high percentage of the rural labor force is "redundant," since the removal of significant numbers of workers would cause production to decline unless there were a shift to a less labor-intensive technology. On the other hand, it should not be concluded that underemployment is only a minor problem. There do indeed seem to be large blocks of labor time which could be put to productive seasonal use. The proper focus of government policy, however, should not be a reduction in underemployment rates but rather an increase in income or levels of living.

## G. OTHER LEVELS-OF-LIVING INDICATORS

The weaknesses of GNP or personal income per capita measures as welfare indicators are too well known to require repetition here. Suffice it to say that they can give a misleading impression of actual living standards, either by under- or overestimating them. In Haiti, as we shall see, the low income figure does not mask a level of living that belies Haiti's classification as a "poorest of the poor" country. Indeed, Haiti's place in this category is confirmed by other level-of-living indicators.

These indicators are also useful for shedding more light on urban-rural disparities and on regional level-of-living differences. Unfortunately, data on regional differences are scarce, and sometimes we are forced to compare individual communities which may not be representative of their respective regions. These caveats notwithstanding, other level-of-living indicators broadly confirm some of the regional patterns suggested by the income data, though some uncertainty remains about relative levels of living in the Departments other than the Northwest. 64/

### 1. Consumption

Estimates of consumption were obtained in the 1970 socio-economic survey and have been reported by the World Bank. The figures are suspect, since for both urban and rural areas consumption expenditures per capita were estimated to exceed labor income (by 45 percent in rural areas and 58 percent in urban centers). A low savings rate--even some dissaving--is of course to be expected in a country like Haiti;

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64/ Our review of other level-of-living indicators is by no means exhaustive. Time constraints have limited the data search to readily accessible materials, and no disaggregation of census data is made below the Department level.

but dissaving of this magnitude is not plausible. These curious figures can be explained partly by the incomplete recording of income, but there remains a discrepancy between income and consumption that is best attributed simply to poor data.

Notwithstanding these problems, the consumption data are useful for showing relative consumption patterns in rural and urban areas. For several key items, per capita expenditures in rural areas, as a fraction of those in urban centers, were estimated to be as follows:

| | |
|---|---|
| Food (including coffee) | .70 |
| Medical care | .62 |
| Clothing | .45 |
| Education | .12 |
| Rent and fuel | .33 |

These figures exaggerate urban-rural disparities in food and housing, both of which are less costly in rural areas. Still, as we shall see below, real per capita food consumption (in terms of calories, protein, etc.) is probably somewhat higher among urban dwellers than among rural residents. Urban housing, except for a tiny segment of the population, is probably on the whole no better than rural housing (see below). 65/

On the other hand, the reported differentials for medical care, clothing, and education are probably fairly good indicators of relative differences in per capita consumption between urban and rural areas. Rural residents simply have less to spare beyond subsistence food expenditures than urban dwellers, and education and medical care are not as available.

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65/ A housing survey found that an average of 4.7 persons lived in each rural dwelling, the same as in urban areas. Urban households were actually more crowded, though, with 2.5 persons per room in the Port-au-Prince area compared with a national average of 2.3 (IBRD 1976: Vol. I, p. 3).

From all indications, rural consumption has at best been stagnant in real terms. If the agricultural sector growth rate of 1.2 percent annually is accepted as a proxy for rural income growth during 1971-75--and this very unreliable figure is taken on faith--then per capita consumption in rural areas would have increased by only 0.1 percent annually. If--as has been alleged--the domestic terms of trade have been turning against farmers (IDB 1974:2), then per capita income in rural areas has been declining. In smaller urban areas income trends seem to have been slightly more favorable (or less worse); but in Port-au-Prince per capita consumption during this period is estimated to have been rising by as much as 10 percent a year (IBRD 1976: Vol. I, pp. 13-14). If these figures are reasonably accurate, the gap between urban and rural living standards has significantly widened during the 1970s. This could well be accelerating the already high rate of migration into Port-au-Prince. 66/

2. Housing

The socio-economic survey of 1970 found that an average of 4.7 persons occupied each rural housing unit, the same as in urban areas. Urban households were actually more crowded, though, with 2.5 persons per room in the Port-au-Prince area, compared with a 2.3 in rural areas. On the other hand, urban dwellings were much more likely to have potable water connections than rural dwellings (20 percent, compared with only 0.1 percent). Neither urban nor rural households have access to sanitary

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66/ Between 1950 and 1971, as we saw earlier in this paper, the Arrondissement de Port-au-Prince gained population at an annual rate of 5.9 percent.

sewerage systems, though some families in Port-au-Prince and Cap Haitien have illegal connections to piped drainage systems (IBRD 1976: Vol. I, pp. 74-75).

The 1970 survey showed that the average rural dwelling unit had 2.1 rooms and, as reported earlier, each room had an average of 2.3 occupants. The Departmental figures were as follows:

| | Average Number of Rooms | Average Size of Household | Average Number of Persons per Room |
|---|---|---|---|
| Northwest | 2.00 | 5.23 | 2.61 |
| North | 2.46 | 4.94 | 2.00 |
| Artibonite | 1.71 | 4.41 | 2.57 |
| West | 1.96 | 4.62 | 2.36 |
| South | 2.20 | 4.58 | 2.08 |

Not surprisingly, the Northwest had the most crowded rural housing, though conditions were almost as bad in the Artibonite. Housing in the West was more crowded than might have been expected, but it must be remembered that this Department includes some relatively poor areas as well as the comparatively prosperous ones. Moreover, relatively high incomes in the Cul-de-Sac, Léogane, and Kenscoff areas are probably to a large extent of fairly recent vintage, coinciding with the rapid rise of urban incomes in the nearby Port-au-Prince market after the socio-economic survey was conducted in 1970. One would expect the South to have among the least crowded rural housing conditions, but the first-place position of the North is surprising.

These data, of course, say nothing about types of housing construction, or the amount of space per person; but considering that virtually all rural housing is of simple construction, built with native materials, and lacking in water or sewer connections, the number of persons per room constitutes a reasonable satisfactory indicator of housing quality.

3. Nutrition

Surveys of various rural and urban communities, conducted between 1972 and 1977, found that 24-53 percent of those in the 0-5 or 0-6 age groups suffered from second or third degree malnutrition. Average daily caloric intake is generally thought to be about 1,700, though this writer has received verbal reports of estimates that are both considerably higher and much lower. The 1,700 figure is a rough average of the findings of various nutrition studies since 1950 (see Table 3.16). Estimates of per capita protein consumption have varied from 27 to 82 grams daily, with the unweighted average being about 45.

Malnutrition and diseases associated with malnutrition are major causes of death, particularly among infants and children. If average caloric intake is indeed about 1,700, then very few persons would consume more than the 2,200 regarded as a minimum standard for the country. The protein deficit looks less severe if we look at average figures, particularly if the minimum standard is regarded as being 43 (King et al. 1968). However, the distribution of protein consumption is probably skewed, and the majority of Haitians probably fall below the standard. Seasonal deficiencies in vitamin A are among the other nutritional problems faced by both rural and urban dwellers.

It is difficult to determine comparative nutritional levels in the 5 Departments, since most of the data in Table 3.16 are for the West. Of the 2 nationwide studies, Sebrell et al. (1955) do not provide disaggregated figures, and the IHS's 1951 study was not located. Caloric consumption in Port-au-Prince appears to be higher than in most rural areas, but the very different findings of two studies for the same

Table 3.16

Summary of Nutrition Studies, 1951-1968

| Authors and Date of Study[a] | Location | Urban or Rural | Average Calories | Average Proteins[g] |
|---|---|---|---|---|
| IHS, 1951 | Various | Both | 1,491-2,450[b] | 70-82[b] |
| Boulos, 1954 | Port-au-Prince[c] | Urban | 2,096 | 45 |
| César, 1955 | Port-au-Prince[d] | Urban | 2,236 | n.e. |
| Grant & Groom, 1956 | Port-au-Prince[c] | Urban | 1,383 | 40 |
| Sebrell et al., 1955 | National | Both | 1,580 | 37 |
| Beghin et al., 1962[e] | Port Margot (North) | Rural | 1,105 | 27 |
| Dominique et al., August 1964[e] | Fond Parisien (West) | Rural | 1,360 | 32 |
| Dominique et al., December 1964[e] | Fond Parisien (West) | Rural | 1,580 | 40 |
| Dominique et al., August 1965[e] | Fond Parisien (West) | Rural | 1,552 | 42 |
| Dominique et al., August 1964[e] | Ganthier (West) | Rural | 1,524 | 36 |
| Dominique et al., August 1965[e] | Ganthier (West) | Rural | 1,420 | 41 |
| Dominique et al., 1965[e] | Guerin (West) | Rural | 2,203 | 56 |
| King et al., 1965[e] | Les Cayes (South) | Rural | 1,857 | 48 |
| FAO Standard | | | 2,200[f] | 55-60[f] |

Sources: King et al. (1968) and USDHEW (1976:67-68).

[a]For authors, complete references, and a discussion of some of the survey results, see the two sources. A more comprehensive survey is Beghin, Fougère, and King (1970).

[b]It is not clear if the lower figures refer to rural areas and the higher figures to urban areas, or if this is simply the range for the various communities studied.

[c]La Saline neighborhood.

[d]Portail Léogane neighborhood.

[e]These surveys used the same research design.

[f]King et al.(1968) use adjusted FAO standards of 2,214 calories and 43 g. of protein.

n.e. No estimate.

neighborhood in the capital [67] suggest that urban-rural comparisons should be made cautiously. Another reason to be cautious is that caloric consumption can vary significantly from month to month: for example, an average of 1,360 calories was estimated for the Fond Parisien area in August 1964, but 4 months later the same researchers found average consumption to be 1,580 calories.

Of the 3 rural communities in the West for which data are available, Fond Parisien and Ganthier have quite low caloric consumption figures. On the other hand, the average in Guerin, in the fertile Plaine de Léogane, approximates the FAO standard. Moreover, protein consumption is higher in Guerin than in any other community studied since 1951. [68] Apart from the West, Table 3.16 provides data for rural communities in the Plaine des Cayes in the South and in the Port Margot area in the North. Caloric intake in Les Cayes is above average for Haiti; so is consumption of proteins, particularly those of animal origin. [69] In Port Margot, on the other hand, the average caloric intake was found to be a grim 1,105 calories, and there was a serious protein deficit as well.

Unfortunately, we know little about Departmental averages, since most nutrition studies have been restricted to a small number of communities.

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[67] See Table 3.16, footnote c. On the other hand, since this neighborhood is a relatively low-income one, the average for all of Port-au-Prince could be expected to be higher than suggested by the data in Table 3.16.

[68] The IHS figures for protein consumption in 1951 are so far out of line with other estimates that, even taking into account a probable decline in nutritional levels since then, the 1951 data are probably not very reliable.

[69] Animal protein consumption in Les Cayes averaged 16 grams daily. In no other study since 1951 did it exceed 10 grams (King et al. 1968).

It is widely believed, though, that nutritional deficiencies in the Northwest are greater than in any other Department, and there is enough circumstantial evidence to justify this claim.

4. Health Status and Health Care

Data on health status are limited, but Haitians most likely have poorer health than citizens of any other Latin American or Caribbean country. The infant mortality rate is officially reported to be 149 per 1,000, the highest in the region. This is only a rough estimate, and some observers believe the true figure is significantly higher. The crude death rate is reported to be 15 per 1,000, exceeded in the hemisphere only in Bolivia, and it is more than twice as high in rural areas (16) as in Port-au-Prince (7); provincial towns occupy an intermediate position (11). 70/ Life expectancy at birth is estimated to be 52 years--the lowest in the Western Hemisphere except for Bolivia.

Malnutrition and its indirect effects have already been mentioned as major health problems. Other causes of high mortality and morbidity include tuberculosis (affecting 1.8-3.0 percent of the population), influenza, and bronchopneumonia. The slide positivity rate for malaria, which had been brought down to 0.2 percent by 1968, rose to 8.0 percent in 1972. Personal and environmental sanitation are poor, and government policy has generally neglected preventive measures. 71/

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70/ Reported in IBRD (1976: Vol. I, p. 76-77). Departmental figures were not provided.

71/ These brief paragraphs on health status are based on information in USAID/Haiti (1977:117-121).

There appear to be no meaningful data on health status at the Departmental level or below. However, data are available on facilities, beds, and medical personnel for the 9 newly-constituted Departments (Table 3.17). The heavy concentration of medical personnel in Port-au-Prince, located in the now-smaller West, is clearly evident. All other Departments have far lower ratios of medical personnel (other than nurse aides) per 10,000 inhabitants. Data on facilities have little meaning, since these include dispensaries as well as hospitals. More meaningful are the data on hospital beds per 10,000 inhabitants; again, the West is highly favored. The most favorable ratio of all, however, is in the Northwest, which very likely is the poorest Department in health status as well as in many other aspects of well-being. Presumably a large proportion of the beds is provided by private and voluntary agencies.

The data in Table 3.17 are not disaggregated according to urban and rural location, but the great majority of medical personnel, and probably also of hospital beds, are in the larger urban centers. One major exception may be the Artibonite, where the Albert Schweitzer hospital in Deschappelles serves a large rural population.

5. Education

The literacy rate in Haiti is variously reported to be between 10 and 25 percent, with the lower figure probably being a more accurate indicator of functional literacy. Literacy in Haiti usually means the ability to read and write French, a language spoken fluently only by an estimated 5 percent of the population and with some facility by perhaps no more than 15 percent. The remainder of the population speaks only Creole, the 4-5 written versions of which are known only to a small number of persons who

Table 3.17

Health Care Indicators, by Department, 1970
(per 10,000 inhabitants)[a]

| Department[b] | Facilities | Beds | Physicians | Dentists | Nurses | Nurse Aides |
|---|---|---|---|---|---|---|
| Center | 0.50 | 4.14 | 0.12 | 0.09 | 0.34 | 1.15 |
| West | 0.51 | 13.78 | 2.04 | 0.27 | 2.28 | 2.79 |
| South | 0.50 | 4.90 | 0.17 | 0.04 | 0.48 | 1.12 |
| Southeast | 0.71 | 3.26 | 0.23 | - | 0.28 | 0.85 |
| North | 0.53 | 5.37 | 0.35 | 0.06 | 0.51 | 0.53 |
| Northwest | 0.89 | 21.78 | 0.58 | - | 0.89 | 2.76 |
| Northeast | 1.85 | 1.68 | 0.29 | - | 0.67 | 2.61 |
| Artibonite | 0.35 | 6.99 | 0.52 | 0.08 | 0.78 | 1.82 |
| Grande-Anse | 0.53 | 2.47 | 0.20 | 0.04 | 0.39 | 1.35 |
| National | 0.56 | 7.91 | 0.76 | 0.11 | 1.00 | 1.94 |

Source: Beckles (1975:13-15).

[a]Actual figures are probably somewhat higher, since the 1970 census counted fewer people than the numbers used to prepare this table.

[b]These are the 9 new Departments recently established by an administrative reorganization. Port-au-Prince is in the West, which ranks first in all health personnel categories and second in beds.

have taken public adult education classes or have studied in private schools. All formal public education at the primary, secondary, and post-secondary levels is conducted in French. The ability of the great majority of the population effectively to participate in national life is thus severely restricted.

The primary enrollment ratio in 1973-74 was estimated to be 89 percent in urban centers but only 26 percent in rural areas. Only 17 of 100 children entering rural primary school achieve literacy, and just 3.4 percent finish the primary curriculum (compared with 50 percent in urban centers) (USAID/Haiti 1977:123-124). 72/ Class size is estimated to average 53 in rural areas (73 in public schools), compared with 32 in urban centers (IBRD 1976: Vol. I, pp. 77-78). Rural areas also are at a disadvantage in terms of facilities, competence of instruction, and (pardon the expression) relevance of the curriculum to the students' environment.

Unpublished data from the 1971 census (see Table 3.18) provide information on comparative educational and literacy levels at the Department level. These data show that the literacy rate for the population 10 years old and above was 28 percent in the more urbanized West but differed little (17-22 percent) among the other Departments. The national average was 22 percent, compared with 10 percent in 1950. Functional literacy, however, is much lower. If we consider this to require completion of 4 years of primary school, then only 12 percent of the adult population

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72/ Actually, urban-rural differences are somewhat less than these figures imply, since children of some rural families are sent to urban areas to finish primary school. Still, the disparity is great.

Table 3.18

Literacy and School Attendance Rates, by Department, 1971
(percent)

| | Elementary Literacy | Functional Literacy[a] | School Attendance Rates, by Age Group 6-11 | 12-18 | 19-24 |
|---|---|---|---|---|---|
| National | 22 | 12 | 24 | 29 | 8 |
| Urban | | 37 | 62 | 57 | 15 |
| Rural | | 5 | 14 | 20 | 5 |
| Metro Area | 28 | 42 | 64 | 59 | 17 |
| Other West | | 6 | 17 | 21 | 6 |
| Urban | | 31 | 58 | 55 | 16 |
| Rural | | 5 | 15 | 19 | 5 |
| North | 22 | 10 | 21 | 29 | 8 |
| Urban | | 36 | 59 | 60 | 20 |
| Rural | | 5 | 13 | 22 | 5 |
| Artibonite | 17 | 7 | 17 | 23 | 6 |
| Urban | | 30 | 63 | 60 | 18 |
| Rural | | 4 | 11 | 17 | 4 |
| South | 18 | 8 | 21 | 25 | 7 |
| Urban | | 23 | 61 | 55 | 17 |
| Rural | | 6 | 17 | 21 | 6 |
| Northwest | 20 | 8 | 24 | 30 | 8 |
| Urban | | 31 | 65 | 59 | 19 |
| Rural | | 6 | 18 | 26 | 4 |

Source: Haiti, IHS, unpublished data from the 1971 census.

[a]Completion of at least 4 grades of primary school. The data in this column refer to the adult population 20 years of age and older.

(20+) met this criterion. In rural areas the figure was only 5 percent, with little variation among Departments. Rural school attendance rates were highest in the South and Northwest, and lowest in the Artibonite.

6. Summary

This brief review of non-income measures of well-being has confirmed the picture presented by the income data: one of considerable urban-rural differentials and of the great absolute poverty of probably 95 percent or more of the rural population. Little additional light, however, has been shed on relative levels of living in different rural areas. Data at the Departmental level, clearly, are much less useful than disaggregations by arrondissement or commune. Some data at these levels are available, usually in unpublished form; but even more are stored on computer cards or questionnaire forms, where they are much less accessible.

## H. SOCIO-CULTURAL CHARACTERISTICS

Although the social and cultural characteristics of Haiti's rural population show some regional variations, there are enough common features for us to make some brief comments of a general nature. It is important that social and cultural factors be taken into account in designing agricultural development projects, for they affect such factors as land use, land tenure, methods of cultivation, willingness to cooperate, and risk valuation.

This brief discussion will focus on a common theme found in the anthropological and sociological literature, that of peasant insecurity. This feeling of insecurity is manifest in peasants' attitudes toward land tenure, family stability, community work groups, and religious practices. Since land tenure security is discussed in detail elsewhere in this study (see Chapter 4.A.1), the comments that follow will focus on the other manifestations of insecurity.

A number of writers (Bastien 1951;Moral 1961:169-172;Valles 1967: 100-110), have commented on the strong family structure that seems to have existed in nineteenth century Haiti, especially in the lowlands. This was based on the lakou, a kind of "family hamlet" (Moral 1961:169) consisting sometimes of 10 houses, grouped around the residence of the head of this extended family, whose members worked an undivided landholding of 20-30 carreaux. This family structure seems to have almost completely disintegrated by the mid-twentieth century. The nuclear family is now the rule, and conjugal unions (through either marriage or plaçage) show a high incidence of instability. In addition, polygynous relationships are common. Writing about a community in the Cul-de-Sac, Murray (1977:262) reports that "a third of the males who have been involved in conjugal unions have tried

out polygyny at least once." It is widely believed that Haitian men enter into polygynous relationships to increase their control over economic resources--i.e. they acquire a wife to work each parcel of land they acquire. But residents of the community studied by Murray (1977:268), non-polygynists as well as polygynists, overwhelmingly viewed plural wives as an economic liability.[73/]

Murray (1977:Ch. 9) also reports another change in family relationships in this community. Population pressures there led to the institution of pre-inheritance grants of land from fathers to sons as a mechanism of parental control. Specifically, this enabled fathers to retain the labor of their sons and keep them from sharecropping elsewhere. Continued population pressures, however, led to a reduction in the average size of parents' land-holdings and thus to decreases, delays, or curtailments of pre-inheritance grants (originally ¼ carreau). This threatened the availability of family labor and resulted in the unusual development of father-son sharecropping relationships. These relationships decreased the authority of the fathers over the sons. It is not clear whether similar changes are also occurring in other parts of Haiti.

Another type of change that seems to have occurred in the countryside is a decline in the use of the kôbit (combite) and other traditional community work groups (escouade, vâjou, mazinga, etc.) under which exchange labor was provided.[74/] Apparently, many farmers find that the obligations placed on the host for food, drink, and entertainment are too burdensome, and they prefer to rely instead on wage labor. The relative use of wage

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73/ The incidence of polygyny was not significantly related to the number of gardens worked or amount of land purchased. However, "polygyny had economic underpinnings in the sense that individuals of lower economic status rarely entered polygynous unions, while individuals in higher statuses stand a very good chance of doing so" (Murray 1977:264).

74/ This is reported by Erasmus (1956), Métraux (1951), and Mintz (1961a; reprinted 1967), among others.

labor, exchange labor, and family labor seems to differ widely, though, by geographic region and by crop (see Chapter 4.A.3).

Parallel to the decline of the lakou and the kôbit--and according to Moral (1961:224) related to it--has been a relative increase in the importance of the rite Petro, the darker, or more "diabolical" of the 2 voudun (vaudou) rites. One might hypothesize that this change is related to deteriorating economic conditions in rural Haiti.[75/]

Other aspects of religious beliefs and practices have a more direct relationship to agriculture and rural development. In many countries, religious beliefs affecting time of planting and methods of cultivation can have a significant depressing effect on crop yields. While there often are valid economic reasons for such practices, not apparent to visiting agronomists, this is not always the case. In Haiti, religious beliefs relating to agriculture do not appear to be a serious constraint to increased agricultural production, though the evidence regarding this matter is very limited. Métraux (1951:65-66) argues that there are few beliefs relating to agricultural practices, though he does mention that sweet potatoes, bananas, and coffee are planted according to a lunar calendar. The examples cited by Bauman (1960) and Murray (1977:512-513) refer mainly to food offerings or other practices unlikely to affect yields.

Finally, mention might be made of the heavy expenditures that cultural norms dictate be made for funerals (Métraux 1951:28ff; Moral 1961:228; Murray 1977:528-534). Murray reports that funeral expenses for an adult in the community he studied amount to at least US$100 but can reach as much as

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75/ "Not only do the lwa demand more, the seriousness of the physical afflictions they send is increasing. . . . It is difficult not to posit some connection between such transformations . . . and the overall impoverishment of life which has taken place in rural Haiti in recent generations" (Murray 1977:518).

US$200 for a well-off farmer; if a new family tomb is needed there will be an additional cost of some US$150. Considerable sums are also spent on the prevention, diagnosis, and healing of illness by traditional medical practitioners. Since the amount of money spent in connection with illness or death seems to vary directly with family income or wealth, these cultural norms may be viewed as a mechanism for intra-community redistribution of income and wealth.[76/] In the community studied by Murray, these expenses were frequently financed by selling land; indeed, Murray (1977:539) found that about 75 percent of the sales in the very active local land market were associated with the need to pay for ritual obligations. These sales permitted younger members of the community to acquire land of their own.

Changing social and cultural patterns in rural Haiti are probably a reflection of declining levels of living. At the same time, these changes perhaps offer some hope for overcoming the traditional unwillingness of Haitian farmers to form permanent organizations (as opposed to temporary structures like the kôbit), which in subsequent chapters we argue are necessary for overcoming obstacles to rural development. With old patterns of behavior and social organization disintegrating, the field may be becoming increasingly fertile for developing new institutions which nevertheless would still preserve much of the social and cultural heritage of rural Haitians.

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76/ They may also be symptomatic of a lack of opportunity for productive investment.

PART III

CONSTRAINTS ANALYSIS

# CHAPTER 4

# FARM-LEVEL CONSTRAINTS

## A. ACCESS TO PRODUCTIVE RESOURCES

### 1. Land and Land Tenure

Although a relatively high proportion of Haitian farmers are reported to have their own land (see Chapter 3.C), there is good reason to be concerned about tenure insecurity. The lack of a national cadastral study and of a uniform system of land registration and titling means that written titles--where they exist--are of dubious legal validity. Moreover, probably the great majority of those who consider themselves owners have no written title at all. 1/

A number of writers have argued that land tenure insecurity is a serious problem in Haiti (Bauman 1960; Casimir 1964; Courlander 1960: 110-121; Engineering Consultants 1975:37; Estimé 1972:32; Franklin and Snyder 1975; García Zamor 1966; Keogh 1960:23; Métraux and collabs. 1951; Moore 1972; Mosher 1957:74; Mouton 1960; Rotberg 1971:279; Schaedel 1962:78; US-IIAA 1949; US-ICA 1958). Most of them explicitly mention it as an obstacle to agricultural development because it discourages investment in more productive inputs. Land disputes reportedly are common

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1/ The percentage of owners with written titles is difficult to determine. Some studies of land tenure do not even discuss titles; others refer to "some form of title" or make similar imprecise statements. Murray (1977:351) believes that fewer than 1 percent of Haitian farmers have valid, individualized titles to all the plots they claim to own. Reportedly, though, almost all farmers regarding themselves as landowners have a notarized document or similar evidence of tenure rights.

(Courlander 1960:110-121; Engineering Consultants 1975:37; Estimé 1972:32; Métraux 1960; and US-IIAA 1949), [2] and it is said that farmers are sometimes forced to part with some of their land as payment for the legal services of lawyers, judges, and notaries (Casimir 1964; Courlander 1960:110-121). Legal problems are said to discourage the subdivision of land upon an owner's death, resulting in unclear land-use rights among the various heirs. There are rumors of land-grabbing, of judges being bribed to issue competing land titles, and of extortion by locally powerful quasi-governmental authorities.

Rarely does one find explicit statements that peasants in a particular area regard their tenure as secure. La Gra (1972:Annex II, p.5) seems to say this for farmers in the Bas-Boën area in the Plaine du Cul-de-Sac near Port-au-Prince, and this was confirmed to the present writer by an observer intimately acquainted with this area. Murray (1977:351-354) reports a high degree of security in the Thomazeau area, but notes that security would be threatened if land were to acquire greater economic value. Tenure also may be relatively secure in that part of the Artibonite Valley where a cadastral survey has been made (see Guerra, Lay, and La Gra 1972). Elsewhere, however, the picture is so unclear that major investments in land improvement--or even in production inputs--should not be made until the land tenure situation in proposed project areas has been carefully studied. We shall return to this matter in the concluding section of this study.

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[2] Murray (1977:143), however, found few land disputes in the Thomazeau area.

2. Capital

The cliché that "Haitian farmers use only the hoe and the machete" is not far from the truth, though as we shall see below this is an oversimplification of the production technologies sometimes employed by small farmers. Capital formation in agriculture is constrained by (a) the low savings potential of the rural population, (b) cultural factors which induce farmers to convert savings into relatively liquid investments, (c) lack of access to medium- or long-term credit, (d) uncertain land tenure arrangements, (e) the small size of the vast majority of farms, (f) lack of cooperation among individual farmers, and (g) lack of public sector investments.

a. The low savings potential of the Haitian population is of course a reflection of the low level of income. Even if 10 percent of income could be saved, the absolute amount of investment in agricultural capital would still be very low per unit of agricultural land.

b. Cultural factors induce farmers to convert savings into relatively liquid investments, thus restricting their ability to devote their meager savings to such activities as terrace construction, irrigation, and tree planting. Anthropologists (e.g. Métraux 1960; Murray 1977) have found that relatively large sums of money are spent on funerals and on the treatment of physical and mental illness by traditional medical practitioners. Such spending, in fact, is dictated by cultural norms. Investment in the form of livestock holdings or land can be quickly converted into cash to meet unpredictable expenses of this nature. Indeed, Murray (1977:Ch. 11) found that the supply side of the very active land market in the Thomazeau area could be explained largely by the need for sellers

to obtain cash for ritual expenditures. On the demand side, land was valued for both social and economic reasons. The desire for liquidity means that little savings is available for channeling into other types of agricultural investment.

c. Medium- and long-term credit is in very short supply (see Chapter 5.C.3), and even short-term credit from institutional sources is limited. Almost all non-institutional credit is short-term. Farmers thus lack the means to make significant long-term investments which may provide no returns for several years.

d. Uncertain land tenure arrangements, as described in Chapter 3.C, do not give many (if not most) farmers the type of security they need to make significant medium- and long-term investments on their land.

e. The small size of most farm units restricts the potential for individual farmers to purchase tractors and other machinery or to construct on-farm storage facilities that provide good protection against damage by moisture, rodents, or thieves. 3/ Ninety-five percent of the farm units are smaller than 3 carreaux (3.9 hectares, or 9.6 acres), and 71 percent are smaller than 1 carreau (see Table 3.9). Moreover, most of them probably are divided into 2 or more non-contiguous plots. Even the rental of tractor services often cannot be economically justified when plots are so small.4/

f. The lack of cooperation among small farmers, widely reported in the sociological and anthropological literature, makes it difficult to overcome constraints to capital formation through group effort. Joint

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3/ Thievery is reported by many observers to be a serious problem.

4/ Moreover, use of tractors may not be technologically feasible. Productivity increases on these plots will have to be based on improved seeds, chemical inputs, and better cultural practices.

purchase of machinery is possible only if farmers are organized into reasonably strong cooperatives or similar groups. Terracing and other erosion control measures will be effective only if nearly all farmers in a particular watershed build the necessary structures. For most farmers, it would not be rational economic behavior to make such investments if there is a high probability that others in the area will not do so. Irrigation systems can lose their effectiveness (e.g. through salinity or siltation) unless there is cooperation in water use management and maintenance of structures.

g. Finally, lack of public sector investments in basic irrigation works, crop storage facilities, and other infrastructure contributes to the small amount of capital available to small farmers.

3. Labor supply

Particularly in the coffee- and rice-growing areas, family members cannot supply all of the labor required at certain times of the crop cycle because of the very labor-intensive production methods employed. Non-family labor is also utilized on the sugar and sisal plantations, as well as on small farms producing these and other crops. Dorville (1975:25) estimates that the Haitian American Sugar Company (HASCO) has a seasonal demand for 5,000 laborers, while for the entire sugar industry an estimated 20,000 workers are said to be hired at harvest time (USAID/Haiti 1974:13). [5/]

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[5/] The number of full-time workers in sugar is estimated to be about 1,000.

Desplechin (1971:56), Kulakow et al. (1976:9), and the J. G. White Engineering Corporation (1976: Exhibit 8.6-1, p. 7) report that wage labor is widely used in the Plaine des Cayes. Desplechin's survey (which covered only 50 farm units and as noted in Table 3.6 is biased in favor of higher-income farmers) determined that labor costs per farm unit in 1971 were as follows:

| | |
|---|---|
| Coffee zone | $116 |
| Sugar zone | 138 |
| Vetiver zone | 154 |
| Basic foods zone | 153 |
| Rice zone | 51 |

Kulakow et al. found that 73 percent of the farmers in the area used wage labor, and the White Corporation reported that wage labor was likely to be hired for parcels of more than 1/8 (!) carreau.

A survey of 42 farmers near Desarmes in the Artibonite found that all but one used wage labor during January-June 1975, with some also relying on various forms of exchange labor (Riaño-Serrano 1975:25). The major crops in this community, in order of importance, were corn, peas, rice, and sweet potatoes--all basic food crops.

This evidence, though admittedly fragmentary, leads us to question the statement in USAID/Haiti's 1974 agricultural sector assessment that little hired labor is used in agriculture and that greater reliance is placed on exchange labor during periods when family members cannot do all the work required (USAID/Haiti 1974:13). While exchange labor

definitely seems to be more important in some areas, [6] the evidence above, and in several studies which argue that farmers actually prefer wage labor to exchange labor, [7] suggests that the importance of wage labor in Haitian agriculture has been underestimated.

Wages are paid by the day, and they rarely come close to the daily minimum (¢8.00, or US$1.60 since early 1978; ¢6.50, or US$1.30 before then). The standard journée is 6 hours in most areas (7:00 AM - 1:00 PM), though in the Plaine des Cayes it is reported to be 5 hours by tradition and 4 hours in practice (White Corp. 1976: Exhibit 8.6-1, pp. 7-8).

Table 4.1 shows nominal wage rates reported in various areas for different years during the 1970s. Since the price level doubled between 1970 and 1976, it is important to convert the nominal data to real wage data in order to provide a reasonable basis for comparison. Even having done this, however, it would be hazardous, given the limited nature of the data, to make any statements about wage differentials by region or

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[6] La Gra (1972:3, 15-16) reports that exchange labor was more important than wage labor in the Bas Boën area in the Cul-de-Sac. Though wage labor was used by 56 percent of the farmers in the relatively prosperous first cooperative in the project being reviewed, only 5 percent of the farmers in the control group employed wage labor. Murray (1977: 235-236) reports that sugarcane near Thomazeau in the Cul-de-Sac is harvested exclusively with exchange labor, though some wage labor is used for other crops, especially by older farmers. An FAO study in the Vallée des Trois Rivières reports that seasonal labor shortages were met by forming combites, escouades and other types of exchange labor arrangements.

[7] This is reported by Bauman (1960) and Erasmus (1956), presumably for the nation as a whole, and by Palmer (1976: 162-163) for the Belladère area.

Table 4.1

Nominal and Real Daily Wages in Specific Regions, Various Years, 1971-1976
(U. S. dollars)

| Source | Year of Estimate | Location | Nominal Daily Wage | Daily Real Wage (1976 prices) |
|---|---|---|---|---|
| Desplechin (1971:56) | 1971(?) | Plaine des Cayes (South) | $0.15-0.20 | $0.27-0.37 |
| Palmer (1976:139-140) | 1974 | Dominican Republic | 0.50[a] | 0.63[a] |
| Dorville and Dauphin (1974:26) | 1974 | Arrondissement de Cap Haitien (North) | 0.40-0.50 | 0.50-0.63 |
| Dorville (1975:19-20) | 1975 | Arrondissement de Cap Haitien (North) | 0.40-0.50<br>1.20[b] | 0.43-0.54<br>1.29[b] |
| Murray (1977:281) | 1973 | Cul-de-Sac (West) | 0.60[c] | 0.86[c] |
| Riaño-Serrano (1975:25) | 1975 | Desarmes (Artibonite) | 0.35 | 0.38 |
| ILO (1976:26) | 1976 | National Average | 0.40 | 0.40 |
| J. G. White Engineering Corp. (1976, Exhibit 8.6-1, pp.7-8) | 1976 | Dubreuil, Plaine des Cayes (South) | 0.30-0.50[d] | 0.30-0.50[d] |
| Haiti, DTPTC (1977:Vol. VI (Draft), Appendix 4F, p. 24) | 1976 | Plateau Central (mainly in the Artibonite) | 0.80[e]<br>4.25[b,e] | 0.80<br>4.25[b,e] |

Sources: As indicated above.

[a]Dominicans received $2.00 per day.

[b]For tractor drivers.

[c]Actually reported as $0.30 for 3 hours, which we assume to be a half day.

[d]Based on a 5-hour day by custom and 4-hour day in practice.

[e]Wage rates assumed in the economic analysis were on an hourly basis: $0.13/hour for laborers and $0.71/hour for tractor drivers. A 6-hour day was assumed.

real wage trends over time. Nevertheless, it seems clear that in real terms wage rates are extremely low. [8]

Low wage rates are a reflection of low productivity. Agricultural output per worker in 1971 was estimated to have been $148 in current dollars (Table 1.15), [9] and if one assumes a 240-day work year this amounts to $0.62 per day. However, the employment figure used in these calculations includes all workers 10 years of age or more; if one uses instead a full-time adult male equivalent, daily productivity rises to about $0.76. [10] Other adjustments, however, are also necessary. First, agricultural product in recent years is overestimated in the national accounts, [11] and this gives an upward bias to productivity estimates. Secondly, however, the average number of days worked is probably well under 240, and to this extent productivity per day actually worked is understated in the above calculations.

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[8] Much earlier, Métraux and his collaborators (1951) reported that daily wages in the Marbial Valley ranged from $0.12-0.15 per day, figures that are roughly the same in real terms as the average of those in Table 4.1. Dorville (1975), who reported real daily wages in the Arrondissement de Cap Haitien to be $0.40-0.50 in 1975, notes that previously they had been $0.25. The earlier date is not indicated, but it is evident that the nominal increase did no more than offset real wages lost to inflation.

[9] The figure in the source is reported in gourdes at 1955 prices.

[10] We have roughly estimated full-time adult male equivalents by applying the following weights:

| | |
|---|---|
| Males, 15-54 | 1.00 |
| Females, 15-54 | 0.80 |
| All others | 0.50 |

The percentages in each group are those for total, rather than agricultural employment (ILO 1976:46). The resulting conversion factor is .809.

[11] See the discussion of the national accounts in Chapter 1.

When all of these factors are considered together, one is left with the impression that wage rates in agriculture are substantially below average productivity. They may, of course, reflect marginal productivity at planting or harvest time. If the figures in Table 4.1 can be believed, and we assume a daily wage rate of $0.50, the plight of landless laborers is serious indeed. A laborer working 240 days a year would earn only $120, or only $27 per capita for an average family of 4.5 persons. Unless another family member were earning a similar amount, it is doubtful that the laborer's family could survive. The very low daily wage rates, and the unlikelihood that many laborers could find close to 240 days of work a year, is reason to believe that the number of landless laborers may be quite small. Migration to Port-au-Prince--or to another country--would seem to be a more attractive option than staying in rural areas looking for work.

In general, we know very little about rural labor markets in Haiti. Is there a national market, or rather do we find geographically segmented markets? Are these markets always competitive, or are wages sometimes affected by monopsony power? Just how much wage labor is used relative to exchange labor? In the concluding section of this study we shall suggest how these and other labor-market questions might be answered.

4. Technology

The existing state of agricultural technology in Haiti was described in detail in Chapter 3.D.1. Farmers' access to new technology is determined primarily by the institutional services available to them: research, extension, credit, input supplies, etc. As we shall see in Chapter 5.C, these services are available only to a small percentage of the rural population. Moveover, the institutions providing them are weak, and the quality of the assistance offered has been affected accordingly.

The disappointing experience with the AID-funded coffee production program, under which credit is made available to small farmers for the acquisition of fertilizer, demonstrates that considerably more attention must be given to research on the application of more advanced technology on small farms in Haiti. In addition, extension agents, whether employees of DARNDR's extension service or some other agency, must know more about what they are extending. Poor extension advice can convert a low-interest loan into one that is extremely costly to the farmer.

Improved technology does not have to be based on the adoption of fertilizer, the use of irrigation, or the purchase of machinery. Farm yields and income also can be increased under traditional systems of farming through better crop rotations, improved intercropping practices, mulching, etc. Little if any research seems to have been done in Haiti on improvements of this type.

## B. NATURAL CONSTRAINTS

### 1. Natural Disasters

Hurricanes periodically cause considerable crop damage in Haiti, especially in the South. Losses were particularly severe from 1963 through 1967, when up to 75 million [?] [12/] coffee trees may have been destroyed (JWK: 1976a: 39). Apart from these short-run losses, hurricanes have taken land permanently out of production, as the landslides they caused left nothing behind but exposed rocks and barren soil.

An anthropologist working in the Fond-des-Nègres area in the South reports that the hurricane of 1963 changed the ecological balance of the area so much that the effects are still being felt. Fruit trees and coffee trees were leveled over a wide area, and according to residents rats which formerly consumed large quantities of fruit were forced to turn to grain. This is one reason why residents say they no longer have sufficient grain to feed their livestock.

Droughts also occur periodically, taking a large toll in agricultural production and human suffering in the Northwest, the Ile de la Gonave, and parts of the southern peninsula. A 7-year period of abnormally low rainfall occurred in the early and mid-1970s but now appears to have ended.

Flooding is another type of natural disaster which occurs from time to time. In 1909 the ecology of the Fond Parisien area was radically changed following a heavy rainfall and resulting floods

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12/ This figure seems much too high and is perhaps explained by a misplaced decimal.

which converted what was once a highly productive area into one dominated by gravel and clay soils. These changes were only partially offset by investments in irrigation and land restoration financed by foreign donors during the 1940s.

While flooding can be controlled to some extent through soil conservation programs, and drought problems can be reduced if irrigation water is found, meteorologists still have discovered no effective means of preventing hurricanes and droughts. Overcoming the effects of these natural disasters requires relief efforts rather than development programs.

2. Climate, Soils, Topography, and Water Resources

Located between latitudes 18° and 21° N, Haiti has a tropical climate. Temperatures vary with elevation, ranging from about 19°C to 27°C. Rainfall generally is irregular, and the annual mean varies from about 600 mm in much of the Northwest to 3,600 mm in parts of the Southwest. The Plaine des Cayes is probably the most favored area in terms of amount and distribution of rainfall. Local patterns vary, but generally there are 2 rainy seasons, in the spring and fall. December, January, and February are the dry winter months, and July is usually the driest summer month. Little information is available on winds, but rarely are they reported to be a constraint to agricultural development.

Haiti's soils are derived largely from the limestone of which most of its mountains are composed. Soils in the mountains are generally thin and in many cases completely absent due to erosion caused by overuse. On gentle slopes and tablelands they typically are red clays

to clay loams, high in aluminum compounds and low in silicates. Plains and valleys usually contain alluvial soils which are dark gray to black loams. In lower areas (e.g. the Artibonite) alluvial soils are typically brown to gray with tight subsoil. Dry plains are generally alkaline. Parts of the Artibonite valley are characterized by high concentrations of salts. This is also true of other areas, particularly where irrigation has been practiced.

The soils of the Artibonite, as noted, are generally alluvial. Bauman (1960:3) describes them as "deep and calcareous with little evidence of profile development. . . . Generally the soils are of fine texture with poor internal drainage." The quality of the water used for irrigation is good, but the delivery system is in bad repair and needs major renovation. There are serious water distribution problems, and management and organization appear to be almost completely absent. Siltation is a perennial problem, both in the valley itself and, most ominously, in the reservoir behind the Peligre dam.

The Central Plateau is an important part of the drainage basin of the Artibonite River. The Guayamouc River and its tributaries converge to the southeast to join the Artibonite. Most rivers in the Central Plateau are seasonally dry, but the Guayamouc carries a considerable amount of water throughout the year since it is fed by a tributary coming from the Northern mountains where rainfall is heavy just when the drought is most severe in the Central Plateau.

The Central Plain varies in altitude from 125 to 450 meters, with an average altitude of about 400 meters. It consists largely of extensive, flat, grassy savannas or rolling lands cut by gorges

and gullies. Large areas have been eroded to gravel and even to the underlying miocene formation. Soils vary from one part of the Plain to another, both in physical properties and in chemical composition, but in most cases they are derived from igneous rocks and have an acid reaction. The A horizon, where tested, is very rich in nitrate nitrogen but poor in both available phosphates and potash. Though hard and impervious in appearance, the soils are light and sandy when dried.

The northwestern peninsula is typically composed of coralliferous limestone and limestone conglomerates deposited on coastal terraces and along the coast itself. Approaching the interior of the peninsula madreporic limestone is found, giving way to silicious limestone and crystalline limestone at the higher elevations. Recent alluviums are comparatively rare because of the limited river activity of the region. The largest area of recent alluvium deposits is the Plaine des Gonaives. Other such areas are found in various river valleys, close to the sea, and in some small coastal plains between Port-de-Paix and Anse-à-Fleur.

The most important rivers of the northwestern peninsula emerge from the Massif du Nord and the Montaignes Noires, flowing towards the north and the west. Less important water courses emerge from the Montagnes du Nord Ouest, flowing towards the north and south.

The Cul-de-Sac region is composed basically of alluvial deposits. Brackish surface water is found in some areas.

The southern peninsula is composed generally of mountains of various types of limestone and basalts. The river valleys and some coastal areas are alluvial.

Haiti's topography is rugged, as illustrated by the following data (JWK 1976d: 10):

| Slope (percent) | Hectares |
|---|---|
| 0-10 | 782,874 |
| 10-20 | 195,258 |
| 20-40 | 252,155 |
| > 40 | 1,451,009 |
| Total | 2,681,296[a] |

[a]Excludes land under water (17,200 hectares).

Steeply sloped land suitable only for grazing, forests, or tree crops has been brought under cultivation because of population pressures. Most of this land is inadequately protected against soil erosion. Because of overuse, many hillsides can no longer support any kind of economic exploitation (see Chapter 4.C).

3. Insects, Diseases, and Rodents

Insects, diseases, and rodents are of varying degrees of importance as constraints to plant production in Haiti, depending on the crop in question. Livestock are subject to several diseases, and the vitality of the human work force is significantly sapped by disease.

Below, by crop, is a brief summary of disease and insect problems discussed in the rather sketchy literature.

a. Sugarcane. Ward cites the sugarcane borer (Diatria saccharalis) as the most important sugarcane pest in Haiti. A 1955-63 study concluded that it was a "somewhat serious problem" (Ward 1975:5), "showing an average percent of internodes bored of 5 percent, with the range being 1-12 percent. The Haitian American Sugar Company (HASCO) attempted at that time to control the borer by mass rearing and release of the tachinid parasite Lixophaga diatracae T.T. Some reduction of infestation was noted which was perhaps attributable to this effort, but no follow-up study was conducted. Ward believes the present incidence of borer infestation to be low.

Other insects of some importance in sugarcane production are termites and scarabs. Aphids have not been observed. Ward notes that Haitian sugarcane is not subjected to the major sugarcane pests and diseases found elsewhere in the world.

b. Coffee. The JWK study (1976a) makes no mention of diseases or pests in a long list of factors which limit coffee production in Haiti. Diseases and pests do not seem to be major problems, although Ward cites the leaf miner, twig-borer, thrips, scales, coccinellids and ants "which tend the scales" as at least worthy of note (Ward 1975:10). These can all be controlled with tree fumigation--D.D.T., aldrin, and dieldrin

for the insects; fungicides containing copper for the fungal diseases.

c. Corn. In his 1976 study in the Les Cayes area, Allen lists the fall army worm (Spodoptera fungipeida) as the most important pest in the field. Others include the yellow-striped army worm, leafhoppers, and a tropical rootworm (Diabrotica sp.). Not observed but also probably present, Allen believes, are wireworms, white grubs, stem borers (probably Diatera saccaralis and possibly Diatera lineolota) and cutworms. Allen (1976:1) notes that "a species of ant is widespread in corn fields and may cause seedlings to dry out." He makes no mention of diseases of corn but does cite several insect pests of some importance in causing damage to stored corn. Among the most common are the rice weevil, red flour beetle, a meal moth, and the Angoris grain moth.

d. Rice. The literature on rice insect pests and diseases in Haiti is particularly skimpy. Stink bugs are mentioned in a USAID/Haiti memorandum dated February 14, 1978 (Wilson, quoting ODVA figures), which notes that they are currently being controlled with nicotine sulfate.

Rats are responsible for severe losses to rice crops in the field: the current loss estimate is 10-30 percent, although no breakdown between stink bug losses and rodent losses has been noted. Further losses of 10-20 percent are reported for rice stored on small farms. Bonnefil (1954) credits the brown rat (Rattus norvegicus) with reducing rice farmers' income by 25-80 percent 20 years ago--a much higher figure, at least at the upper end, than ODVA's current estimates. Bonnefil observes that the roof rat further cuts into the rice harvest in small-farm storage. His 1954 study shows a rat population of 50 per acre in inundated rice paddies. Bonnefil notes that the damage from rat infestation 2 decades ago was "so severe that many farmers [were] forced to limit their rice acreage to that over which they [could] maintain a nightly

vigil" (1954:12). Others gave up growing rice altogether.

Bonnefil identifies increased rice production as the main reason for massive rat infestation. Further, he notes that the hand-built dikes surrounding rice paddies remain as more-or-less permanent structures, affording the rat population year-round shelter. Weed growth removed from the paddies is thrown up on the dikes, where the sweet potatoes planted by farmers offer the rats additional food and shelter.

Rat control methods found to have been very effective in Haiti include zinc phosphate-sweet potato-oil baits used beyond a 100-foot radius of dwellings, and pival-cornmeal-sugar-oil bait within a 100-foot radius.[13/]

Although a comparison of 1954 and 1978 figures indicates some reduction in losses of rice to pests, rats remain a major constraint to production.

e. Beans. Two important and complementary studies have been completed on bean (Phaseolus vulgaris) diseases and insect pests in Haiti. Vakili's (1973) study addresses bean diseases and pests in the lowlands; that of Kaiser and Meléndez (1973) covers the highlands.

The major diseases encountered in the lowlands, in descending order of importance,[14/] were the common bean mosaic, the white fly-transmitted group, and bacterial diseases. (1) The Common Bean Mosaic (CBM) was found throughout the area visited; incidence ranged from 1 to 60 percent. Primary (i.e. seed-borne) infections were 20-25 percent in some fields.

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13/ These methods were approved, Bonnefil (1954) notes, by the Branch of Predator and Rodent Control of the U.S. Fish and Wildlife Service and by DARNDR.

14/ The criteria for determining importance were based on distribution within the area visited, intensity within the given location, and effect on yield.

Recommended methods of control include cultivation of CBM-resistant varieties, cultivation of CBM-susceptible seed produced in a disease-free plot, and insecticide spray to control aphids which are vectors of CBM. (2) The white fly-transmitted group of viruses includes, in descending order of prevalence, golden yellow mosaic (GYM), Rhynchosia mosaic (RM), Abutilon mosaic (AM) and Crumpling mosaic (CM). GYM infestation was 100 percent in some fields visited and is very widespread in Haiti. RM and AM are also found throughout the country but less frequently than GYM. CM is of little importance. Control is complicated, involving careful cultural practices and destruction of wild or alternate host plants in the vicinity of bean plots, as well as the destruction of infected bean plants. Contact insecticides are not very effective and systemic insecticides, though effective, are usually too expensive to make their use profitable. (3) Bacterial diseases include most importantly the common bacterial blight and tropical halo blight, both of which are caused by Xanthomonas bacteria. Common in infected fields during the dry season, these bacterial diseases are probably brought in on seeds. Control of bacterial diseases involves proper cultural practices, disease-free seed, and, where necessary, use of tri-basic copper sulfate spray. Powdery mildew, southern blight, angular leaf spot, cercospora, smut, and rust are found but are not important limiting factors in bean production.

The only major insect pest noted by Vakili was the leafhopper (Empoasca sp.). Leafhopper damage was widespread and "in some cases it was severe enough to be a limiting factor in bean production" (Vakili 1973:6). Vakili also notes the leaf webber (Lamprosema indicata) as a potential serious pest problem. Control involves correct cultural practices and the use of insecticides.

The main diseases limiting bean production in the highlands are

anthracnose, GYM, powdery mildew, and rust. (1) Anthracnose affects foliage as well as pods and seeds. Spread from one plant to another by splashing rains, it spreads from one area to another through infected seeds. Kaiser and Meléndez do not estimate its range or the severity of infestation. Control includes proper seed collection, use of certified seed, use of resistant varieties, or chemical control with fungicides such as captan and dipthane M-45. (2) Powdery mildew is initiated and spread in bean plots by air-borne spores wind-blown from infected beans or from other hosts in the vicinity. Its incidence was not estimated. Control can be achieved by the use of resistant varieties or fungicides. (3) Rust often reaches epidemic proportions under ideal conditions, resulting occasionally in total plant defoliation. Infection is initiated by spores spread by wind or by splashing rains. Kaiser and Meléndez (1973:18) identify "many races" of this fungus. Control can be accomplished by aggressive use of fungicides or by use of varieties resistant to the particular race of rust which threatens a given area. Some less important bean diseases noted in the highlands include angular leaf spot, cercospora leaf spot, root rot, and web blight.

The only important insect pest noted in the highlands was the leafhopper, also found in the lowlands.

f. Tobacco. Ward (1975) cites viruses, bacterial diseases, and fungal diseases as limiting factors in tobacco production but provides no ranking of importance or geographic breakdown. He identifies nematodes as the main pest problem and lists hornworms, aphids, fleabeetles, and the potato tuberworm as other important pests.

g. Cotton. Ward (1975) observes that insects are the major limiting factor in cotton production. He points out that most cotton pests

occurring in the southern U.S. are present in Haiti and can be attacked through proper cultural practices and the use of insecticides. Ward believes that the major problem in reducing insect damage to cotton is farmer organization. The JWK cotton study (1976b) supports Ward's view of the importance of insect damage and singles out the boll weevil (Anthonomus grandis) as the most damaging. Control includes proper cultural practices, especially burning of cotton plants and field debris after each harvest, and the use of insecticides. The JWK study agrees with Ward that cooperation among farmers is absolutely essential for effective control. Under present conditions, the study concludes, control of the boll weevil is impossible.

h. Sisal. The exhaustive JWK sisal report (1976e) listed no disease or pest problems as important factors limiting production.

i. Mangoes. The JWK mango study (1976c) notes that most Haitian mango trees are not seriously damaged by diseases and insects. The most prevalent diseases and pests are listed as anthracnose fungus, powdery mildew, sooty mould, die back, and the fruit fly. Anthracnose is more severe in wet areas, although there are resistant varieties. Die back is caused by prolonged dry weather. Fruit fly attacks are more prevalent in mountainous areas of the country. Insecticides and fungicides can control all of these, although mangoes grown in damp areas tend to be more prone to diseases than those grown in hot, dry plains (JWK 1976c). Less important insects and diseases include mango scab, stem-end rot, pink disease, thrips, mango hopper, mealy bugs, scale insects, and mites. Bonnefil (1954) cites rats as an important cause of reduced mango yields.

j. Coconuts. Ward (1975) cites mycoplasma, the erophid mite (Eriophyos guerrerorus), and the scale (Aspidiotus destructor) as 3 very

serious constraints on coconut production. He suggests 3 coccinellids (ladybird beetles) for use as biological control agents to reduce scale damage. These include Chilocorus migritus F., C. politus Muls., and Cryptognatha nodiceps Mshl.; all reportedly have been used with "remarkable successes in other coconut regions (Ward 1975:12). Inoculation of trees with terromycin, Ward notes, has been attempted in Florida to control mycoplasm, but with uncertain results.

k. Bananas. Recent studies have said little about banana diseases and pests in Haiti. The J.G. White Corporation (1942:21) observed that Sigatoka leaf disease was widespread; root disease (Panama disease) was observed, particularly in the Jacmel area, but was under control at that time.

Monnet (1973) cites Cosmopolites sardidus as the most important banana pest in the Trois Rivières area. Control can be accomplished through applications of aldrin or diazinon. Other less important problems include nematodes, thrips, fungus diseases, and several virus diseases.

l. Vegetables. Lambrechts (1967) lists the important diseases and insects limiting vegetable production in Haiti. Common parasites, mildews, and fungus diseases are mentioned most often.

Rats, as indicated above, are a very serious constraint to agricultural production. Figures are difficult to come by (see Bonnefil on rice and mangoes above), but Roe (1978:14) states that "rats cause the most damage to all grains, except beans." He further notes that rat infestation of trees greatly reduces cocoa yields.

There has been little or no organized research done on animal diseases in Haiti. Conversations with personnel at the Veterinary Service in DARNDR have produced the following very sketchy picture of animal diseases. A particularly high incidence of anthrax has been noted in cattle in the West and South, particularly in the Cul-de-Sac region, Fond Parisien, and Anse-à-Veau. Piroplasmosis infects about 45-55 percent of Haiti's cattle nationwide, and worms are found in about 90 percent. Mastitis is common but no rates of infection or geographic breakdown are available. Infected wounds are very common. Cysticeresesis is fairly common, as is coccidiosis. Common horse diseases include tetanosis, mal de genot, worms, strangles, and arthritis. No rates of infection or geographic breakdown are available. Among hogs, diseases that have been noted include worms, cysticeresesis, hog cholera, anjesky disease, abscesses, erysipelas, and atrophic rhinitis. Chickens are commonly found to be infected with coccidiosis, fowl pox, chronic respiratory diseases, and Newcastle disease. Anthrax is a serious problem in goats, and brucellosis has also been observed.

Disease plays an important though difficult to quantify role in reducing the productivity of Haiti's rural work force. Malaria, dengue fever, tuberculosis, malnutrition, protein deficiency, intestinal parasites, and various vitamin deficiencies in specific regions and population subgroups are probably the most important health-related debilitating factors. Estimates of the incidence of tuberculosis range from 1.8 to 3.0 percent of the population, though these data are not very reliable. Recent figures indicate that 20 percent of the population under 15 has positive tuberculosis reactions. No reliable data exist on dengue fever or intestinal parasites, though the incidence of both is presumed to be high.

## C. SOIL EROSION AND RELATED MAN-MADE CONSTRAINTS

Soil erosion is perhaps the most basic and, in the long run, the most serious constraint to increased agricultural production in Haiti. Directly and indirectly, it has been a major reason for the very slow growth of agricultural production in the last 15-20 years. The problem manifests itself in several ways: (1) simple reduction in volume of soil resources; (2) reduction in soil fertility; (3) development of "pseudo-droughts"; and (4) clogging of irrigation systems (Ewel 1977). We may briefly examine each of these aspects of the problem.

1. The loss of soil from small farmers' typically tiny fields lowers the ratio of soil to rock, increasing the physical difficulty of producing crops and steadily reducing the area that can be used for food production. Barring reversal of this trend, the field is eventually reduced to bare rock, requiring the farmer to find new land to cultivate. Nationwide, this phenomenon results in a steady reduction in the total cultivable land area, which combined with a steadily growing population intensifies pressure on the remaining land.

2. Reduction of soil fertility is a very rapid phenomenon, completed to a dramatic extent in the early stages of erosion. Most soil nutrients are held in the topsoil: Ewel (1977:2) points out that "frequently in deeply weathered tropical soils 90% of the total nutrient supply is found in the top 10 centimeters." This invaluable resource is lost with the onset of soil erosion in a given area, and the loss has an immediate negative impact on production levels.

3. Reduction of the water-holding capacity of the soil results in "pseudo-droughts" (Ewel 1977), i.e. drought-like conditions which are not really reflections of limited rainfall. Plants depend on water held in

the soil to survive between rainfalls, and generally speaking the deeper the soil the greater its water-holding capacity. As soil depth is reduced through erosion, its water-holding capacity decreases, thus lowering its ability to sustain both agriculture and indigenous plant life. On a large enough scale this problem can result in dried-up watersheds and actual reductions in rainfall. Still, as Ewel (1977:3) notes, this is not as serious a problem as natural desertification, since rehabilitation of the soil can arrest, and in time reverse, the damage done. In other words, rainfall is adequate to sustain agriculture, and the problem is rather an inadequate layer of soil to retain that rainfall on the land.

4. Water-borne silt from hillside fields and watershed slopes is a common cause of clogging of canals and ditches in irrigation systems below. This is an extremely widespread problem in Haiti--making irrigation ineffective on perhaps half the 70,000 hectares served--and is a direct reflection of soil erosion.

The seriousness of the soil erosion problem in Haiti is difficult to overestimate. Ewel regards it as the worst in the western Hemisphere. Others have described it as the worst in the world in terms of annual soil loss per hectare. Eckholm (1976:169) cites Haiti as one of the few countries in the world which may surpass El Salvador in nationwide environmental destruction. Whatever its rank internationally, the seriousness of the problem in Haiti is obvious and widely commented upon. A UNDP report cited by Eckholm (1976:169) identifies "rapid and increasing erosion" as Haiti's "principal problem." Elsewhere (FAO 1976:9) it is pointed out that soil erosion, particularly where it results in sedimentation in reservoirs, has had a "disastrous effect on agricultural production. In a number of cases the damage

caused is irreversible and the future economic stability of the agricultural sector is seriously threatened." Ewel believes that erosion in the Artibonite Valley has reduced the efficiency of the Peligre dam by more than 40 percent; others believe the figure to be about 60 percent.

The true scope of the soil erosion problem is difficult to determine, since there seems to have been no systematic effort to measure it. Nevertheless there are several indications in the literature that the damage is widespread. In the early 1960s, USAID/Haiti and DARNDR (1962:1) estimated that 80 percent of the cultivated land in Haiti was suffering from soil erosion to some degree; most was described as "severely eroded." It is not clear how this figure was obtained, and it seems inflated unless it is meant to include land which is not receiving irrigation water because of siltation-clogged canals and ditches, and hillside land which was once "cultivated" but later rendered useless through severe erosion.

Berry and Musgrave (1977:4) observe that "there can be very few areas (in Haiti) where cultivation has not been tried and found to fail." In addition to an assumed 907,800 hectares now under cultivation, they believe that an additional 462,500 once-cultivated hectares have been lost to erosion. If we accept their assumption that virtually all cultivable land has been put under cultivation at one time or another, it has to be concluded that more than one-third of Haiti's original arable land endowment is now lost for agriculture, probably permanently. Furthermore, the process is continuing. An additional 365,000 hectares are described by Berry and Musgrave as uncultivable, water-deficient land. Whether some of this land might more accurately be described as suffering from the pseudo-drought conditions described by Ewel is not clear.

Beyond noting that hillside farming areas, watersheds, and irrigated plains suffer most from soil erosion and its effects, the available literature does little to identify the geographic breakdown of erosion damage. Ewel (1977:12) argues that such an identification is unnecessary: "soil erosion," he points out, "is a nationwide problem and its severity is obvious to even the most casual, untrained observer."

The activities contributing to the soil erosion problem are rather easily identified. Simply stated, the problem is the inappropriate and overtaxing use of the land (Lothier 1974). Citing the example of Morne l'Hôpital, near Port-au-Prince, Lothier observes that although only 2 percent of the land in the area is suitable for cultivation, 20 percent is actually being farmed. A soil conservationist now working in the Acul River Watershed near Les Cayes believes that virtually none of the area is really suited to farming. Yet 60-70 percent is under cultivation, and all of it shows signs of soil erosion; the erosion is moderate to severe for 60 percent of the land being farmed. Franklin and Snyder (1975) generally support this assessment. They also note that 75 percent of the Jean Rabel Watershed in the northern peninsula is under cultivation, though "most of this land occupies steep hilly areas where continuing uncontrolled erosion is each year reducing the productivity and actual land area" (p. 1).

In addition to overcropping, Haiti's soil resources are damaged by overgrazing by cattle and goats and by overcutting of trees for charcoal and lime production (Lothier 1974) and for immediate use as fuel or for construction. Unfortunately, these activities take place on slopes which were never suited for agriculture in the first place. Rarely are any soil conservation efforts undertaken to minimize the inevitable destruction.

These activities, though superficially important (so to speak), should not be regarded as the underlying reasons for Haiti's soil erosion problem. They explain how the soil resource is destroyed, but not why and on such a massive scale. As Ewel points out, the real reason for the destruction is not simply that ignorant peasants are mindlessly destroying the basic resource providing their subsistence. No one, he notes, farms a 60-degree slope because he likes to. Rather, he and many others insist, subsistence farmers have no alternative.

Virtually all studies reviewed pointed directly to Haiti's social, political, and economic framework as the ultimate cause of the disastrous destruction of its soil resource base. Land ownership patterns, together with an oversized and growing population, constitute the most frequently cited combination of circumstances conspiring to perpetuate the present rate of soil erosion. Lothier (1974) lists land ownership patterns and socio-economic conditions as principal causes of soil erosion in the Morne l'Hôpital area. Ewel (1977:6) points out that one obvious solution to the soil erosion problem--"subsistence alternatives on lands appropriate for sustained agriculture"--is probably not possible given Haiti's "current socio-political status and population density." Thiesenhusen (1976) concludes that social organization, economics, and land tenure rights are the crucial areas which must be studied to discover the real causes for over-exploitation of soil resources and consequent soil erosion. Franklin and Snyder (1975:12), writing specifically about the Haitian situation, predict that "soil and water conservation practices will never be fully effective and widespread" unless farmers are given secure tenure on their land and a "more equitable share of the value of their agricultural product. . . ." Eckholm (1976:169), in his worldwide survey of the extent and causes of destructive soil erosion, concludes that economics, politics, and land ownership are underlying factors in virtually every case of severe nationwide

erosion damage. He cites Haiti specifically as being in a particularly advanced state of environmental destruction and points to its "inequitable distribution of land ownership, economic opportunities and social services" as underlying causes. Though this statement exaggerates the severity of the land tenure problem, considerable tenure insecurity exists (see Chapter 3.C).

It is of course true that simple rectification of social and economic inequities will not of themselves end the soil erosion problem in Haiti. Some large areas have already reached the point of permanent destruction, so that even natural regeneration of suitable vegetative cover may not take place because of the decimation of the natural vegetative gene pool. Ewel (1977:17-18) points out that regeneration in these areas will be hampered in 3 ways:

> First, it will undoubtedly be slower than might be expected in other tropical and subtropical areas of equivalent rainfall. Second, the species which initially recolonize these sites will be more typical of drier sites (and therefore may be less valuable and slower growing) than would normally be expected. Third, some of the best-quality tree species which might be expected to occur naturally among natural regrowth may be very scarce or absent because they have been preferentially exploited for so long.

In areas which can still be reclaimed technically and economically, an appropriate soil conservation program would include such activities as construction of terraces and other structures, controlled grazing, intercropping, and the planting of appropriate crops. A large extension effort would be needed to explain appropriate techniques of soil conservation to small farmers and to involve them intimately in the soil conservation effort. Ewel (1977) points out the need to regard peasant farmers as being as much a part of the ecology of á watershed area as the soil, water, and vegetative cover. Others (FAO 1976:9) claim it is "absolutely necessary to involve the peasants in any successful attempt at soil conservation." Thiesenhusen (1976) stresses the importance of channeling extension efforts through local peasant organizations.

Granted that much more than rectification of social, political, and economic inequities is needed to arrest and reverse soil erosion, it is difficult to escape the conclusion that, without fundamental changes in these conditions, technical efforts in soil conservation will be built figuratively on sand and literally on rock.

Ewel (1977), after listing some obviously "difficult" problems associated with soil rehabilitation in Haiti--such as the advanced, widespread state of erosion, the absence or degraded state of natural vegetation, and problems of transportation and communication in rural areas--concludes that the far more crucial problems which must be faced will be social, cultural, and political. He feels that the goals of assistance programs in soil conservation, i.e. assistance to the poorest of the poor, and the prescribed manner in which this assistance is to be provided, i.e. by working through GOH agencies, may not be compatible.[1]

Thiesenhusen (1976) argues very strongly that well-known techniques of soil conservation in hillside agriculture will not be employed by peasant farmers if they are not rewarded for their efforts. This does not simply mean payment for construction of terraces and other efforts. What is meant is that peasant farmers will not maintain structures, or continue to employ soil conservation techniques when payment has stopped, unless it is obviously to their long-term benefit to do so. Thiesenhusen argues that "it may be perfectly rational for peasants to make little effort to engage in long-term investments

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[1] Nevertheless, Ewel still thinks that an effort should be made to implement erosion control programs given the present obstacles; at least there is some chance that erosion will be halted, whereas with no action at all the picture is certain to become even more grim. Given possibly very unfavorable benefit-cost considerations, however, alternative means of assisting Haiti's rural poor should be considered if there is no willingness to take the steps necessary to give small farmers land tenure security.

of contour farming, terracing, tree planting, etc." if they know that the land may well revert to someone else--or may already belong to someone else. This phenomenon, of course, is not unique to Haitian peasant farmers. In the United States, it is well understood that farmers leasing or renting land will be extremely reluctant to invest either time or money to improve land which is not theirs and is unlikely to revert to them, barring a land reform movement at least as difficult to imagine in the United States as it is in Haiti. The emphasis, rather, is on a fast return. A situation similar to that in Haiti may be seen in Nebraska, where farmers renting land either destroy tree lines preventing wind erosion, or at best ignore them and allow them to deteriorate, in order to cultivate every square inch of rented land.

The implications for AID for serious, realistic programming in the area of soil erosion control in Haiti are somewhat daunting. The complex problems which must be resolved if technical innovations are to have any lasting effect, and if AID is to direct its efforts toward assisting the "poorest of the poor," have never been adequately addressed in Haiti. The crumbling terraces of the recently "completed" U.N. soil conservation project near Les Cayes are evidence of the long-term value of efforts which ignore these most basic issues.

A less pervasive man-made constraint to agricultural development in Haiti is soil salinity, mentioned occasionally in the literature as a growing problem associated with irrigation systems. Palmer (1976:23) mentions that groundwater in the Belladère area is now of little potential use because of high salinity. According to an agricultural advisor with the Israeli project in the Cul-de-Sac region, salinity is a problem in groundwater pumped from irrigation wells in that region. The FAO (1969) has called attention to a growing salinity problem in the Northwest, where the soil has become less able to support certain crops. Thus farmers have had to substitute cotton, a more

salt-resistant but less remunerative crop, for beans. Table 4.2 gives some indication of the extent of salinity and its impact on agriculture in the Northwest and in the Gonaives regions.

Table 4.2

Land Area under Cultivation
and Land Affected by Salinity in
the Northwest and the Gonaives Regions

| Region | Cultivated Area | Land Area Affected by Salinity | |
|---|---|---|---|
| | | Total | Severely Affected[a] |
| Northwest | | | |
| Plaines des Moustiques | 900 | 600 | 350 |
| Plaine de Cabaret | 1,150 | 600 | 150 |
| Plaine des Rivières Cola-Lacomo | 2,600 | 900 | 350 |
| Vallée de Jean Rabel | 1,400 | 100 | 70 |
| Gonaives | | | |
| Basse Plaine des Gonaives | 4,000 | 800 | 250 |
| Basse Plaine de l'Estere | 2,000 | 2,000 | 1,600 |

Source: FAO (1969).

[a]Land of such a high level of salinity that the cultivation even of crops resistant to salt is rendered difficult or impossible.

# CHAPTER 5

# SUPPORT SYSTEM CONSTRAINTS

## A. SUPPLY-DEMAND CONSTRAINTS

### 1. Supply Analysis

Ideally, domestic supply analysis would be built around Haiti's principal crops. Total crop production would be disaggregated by end-use into on-farm consumption, seed, animal feed, storage and other losses, and net marketable surplus. The latter, in turn, would be split into domestic and foreign sales. Unfortunately, reliable analysis of this nature is not feasible. Crop production estimates are of poor quality and for any particular year can vary considerably depending on whether they are made by DARNDR, FAO, or USDA (see Chapter 2.B). Even the reported trends in production must be regarded with caution. End-use data, where they exist, are little more than guesses.

The various estimates of agricultural production suggest, on balance, that aggregate domestic supply--both of food crops and of total sector output--has been growing no faster than the population (1.6 percent annually), and quite possibly slower. Given the limited availability of unused agricultural land--and the loss of existing crop land to soil erosion--expansion of aggregate supply will have to be based largely on increased yields. This, in turn, will require measures to overcome the farm-level constraints identified in the previous chapter.

Over the long run, the composition of domestic supply has been shifting away from export crops toward domestic food crops. Tax and price policies have acted as disincentives to coffee and sugar production (see Chapters 6.A and 3.D.2), and cocoa production has been discouraged by monopsony.

Unfavorable long-run trends in world market demand have made sisal and cotton production less profitable, and cotton price policy has acted as a further disincentive (Chapter 3.D.2). These unfavorable conditions, as well as demand pressures to be discussed below, have favored a long-run reallocation of resources into food crops.

In the short run, however, favorable world market conditions will cause producers to reallocate resources out of domestic food crops and into export crops (e.g. sugar in 1975, coffee in 1976-77). Supply response for export crops, however, does not seem to be very elastic. Low yields and high unit production costs, a reflection of the low level of technology employed, appear to limit opportunities to increase existing exports or develop new ones. Food crop production is also affected in the short run by drought and other natural causes. These events can create sudden pressures for imports--particularly of food grains--to augment domestic supplies. Food grain imports will be discussed in more detail below.

2. Demand Analysis

During the 1960s the demand for food in Haiti was probably growing no faster than the population. Indeed, with per capita income declining effective demand for food may have grown more slowly. Accordingly, there was no strong pressure on food imports, which increased only modestly during the decade, even in current dollars (see Table 1.10).

Since 1970 the demand for food has been increasing more rapidly because of the growth of per capita income. To obtain a rough estimate of the growth of food demand between 1970 and 1976, we may utilize the following formula:

$$\dot{D} = \dot{P} + E\,(\dot{Y})$$

Where $\dot{D}$ = annual rate of growth of food demand

$\dot{P}$ = annual population growth rate

E = income elasticity of demand

$\dot{Y}$ = annual rate of growth of real per capita income

Given a population growth rate of 1.6 percent,[1] an annual growth in real per capita GNP of 1.6 percent,[2] and a presumed income elasticity of demand of 0.5,[3] our preliminary estimate of the growth of food demand is 2.4 percent:

$$1.6 + 0.5(1.6) = 1.6 + 0.8 = 2.4$$

This figure should be regarded as suggestive only: $\dot{P}$ may be underestimated while $\dot{Y}$, as we saw in Chapter 1.A, may be overestimated. Moreover, in assuming a figure for E we have perhaps not adequately taken into account the very unequal distribution of the increment to income since 1970. Specifically, urban income seems to have increased much faster than income in rural areas, where 75 percent or so of the population still lives. Real per capita income in the countryside probably has increased very little, as the favorable effects of higher sugar and, later, coffee prices were largely offset by the adverse effects of prolonged drought. Moreover, per capita income increases probably have been confined to a relatively small segment of the rural population.

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1/ Recent IHS estimates suggest a growth rate of 1.87 percent during the 1970s, but we shall continue to use the 1.6 percent rate pending an evaluation of the new data.

2/ We assume arbitrarily that disposable income rose at the same rate as the GDP.

3/ No statistical analysis has been made of the income elasticity of food demand in Haiti, and the detailed household budget data needed for such a calculation do not seem to exist. The 0.5 figure is a conservative aggregate estimate based on results obtained in other developing countries.

The effective rural demand for food, then, probably has not been growing much faster than the rural population (1.1 percent, or perhaps less if we assume that the rate of rural-urban migration has increased). In urban areas, where the population has very likely been increasing faster than the 1950-71 growth rate of 4.1 percent (5.9 percent in the Arrondissement de Port-au-Prince), per capita income has been rising fairly rapidly. While economic growth has probably benefited upper- and middle-income groups disproportionately, some lower-income families have also benefited through the multiplier effects of increased urban spending.

Whatever the resulting increase in urban demand for food might have been since 1970, it seems clear that the supply of domestic foodstuffs has not kept pace with the growth of combined rural and urban demand. Moreover, the rapid increase in urban demand for food has placed a strain on marketing services, which very likely are quite inelastic.[4/] Food prices have increased relative to the prices of other commodities: while the overall consumer price index in 1976 stood at 199.4 (1970=100), the food price component of the index was 240.4 (estimate based on incomplete data).

Brief mention might be made again of foreign demand for Haiti's agricultural products. The strongest markets appear to be those for essential oils and perhaps cacao. The outlook is not good for sisal or cotton. Coffee and sugar markets will probably continue to grow at moderate rates over the long run, but with short-run price fluctuations that will be controlled with

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4/ Hayami and Ruttan (1971:264-269) have found that traditional marketing systems in developing countries do not usually respond well to a rapid increase in market demand.

varying degrees of success through international agreements. The U.S. market for some fresh fruits and vegetables will probably grow rapidly, but high unit production costs and marketing problems will limit Haiti's participation in these markets.

3. Concessional Food Grain Imports [5/]

One result of the growing supply-demand imbalance has been a rapid increase in food imports (see Table 1.10), both commercial and concessional.[6/] Imports of wheat grain and flour, which do not compete directly with local production, amounted to 96,000 MT and 10,000 MT, respectively, in 1977. There were also substantial imports of corn and rice, both of which are important domestic crops (see Table 5.1). These imports were large enough to have had a significant impact on local food grain prices.[7/] Even wheat imports might have affected grain prices, since it is believed that wheat flour is substituted for corn meal; the extent of this substitution, though, is not known. It is thought that almost all the wheat imported to Haiti, and most of the rice, is consumed in Port-au-Prince. Corn imports are more widely distributed geographically.

Concessional food grain imports have both favorable and unfavorable effects on the domestic economy. On the favorable side, they save foreign exchange, reduce (and therefore help stabilize) food prices, increase protein and calorie consumption, and, indirectly, raise discretionary consumer income. Since food grain prices are likely to be elastic and in Haiti have been found to be interrelated (see Chapter 5.B.6.), increased grain supplies in Port-au-Prince should lower prices elsewhere in the country, thus benefiting rural as well as urban consumers.

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5/ This section is based primarily on Roe (1978:138-147).

6/ The great bulk of concessional imports have been made under PL-480 agreements.

7/ The data needed to estimate the extent of this impact are not readily available.

Table 5.1

Imports of Rice and Corn, 1972-1977

(metric tons)

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|
| Rice--Total | 350 | 5,400 | 800 | 4,450 | 11,500 | 50,000 |
| Concessional | 261 | - | 93 | 925 | 5 | 15,000 |
| Commercial | 89 | 5,400 | 707 | 3,525 | 11,445 | 35,000 |
| Corn Grain--Total | 100 | 4,800 | - | 4,651 | 1,041 | 17,000 |
| Concessional | - | - | - | 3,000 | - | 10,000 |
| Commercial | 100 | 4,800 | - | 1,651 | 1,041 | 7,000 |
| Corn Meal-- Total | 726 | 665 | 673 | 1,996 | 2,540 | 3,000 |
| Concessional | 726 | 665 | 590 | 136 | 136 | 1,000 |
| Commercial | - | - | 83 | 1,860 | 2,404 | 2,000 |

Source : Roe (1978:139), based on data provided by the U.S. Embassy, Port-au-Prince.

On the negative side, concessional food imports lower the incomes of farmers producing the imported commodities, thus discouraging production. Moreover, as Roe (1978:141-146) demonstrates with a model of consumer spending behavior, some consumers can actually suffer a loss of welfare, notably those who produce and sell preferred food grains (beans and rice) and purchase less-preferred grains (corn and sorghum).[8/] In this case, concessional imports depress prices received by farmers, lowering farm incomes and decreasing purchases of the less-preferred grains. The situation in Haiti is complicated because a high percentage of the population both produces and consumes food grains. In general, net welfare effects depend on whether a particular farm household is a net seller or purchaser of the food grain being imported. If it is a net seller, its welfare will decline; if a net buyer, its welfare will increase. In all cases, domestic production of the imported grain will decline.

In the face of this complicated picture, Roe (1978:147) recommends 4 policy guidelines for minimizing the negative impacts of concessionary imports:

1. Concessional imports should be such as to have a minimal impact on relative food prices.

2. Concessional imports can be justified if seasonal prices are in excess of the magnitude required to induce investments in storage capacity and if high seasonal prices are reflective of adverse, non-controllable supply conditions, such as drought.

3. Concessional imports can be justified if dispersed to non-market participants, subject to need.

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8/ These examples are based on indifference-curved model showing the relationship between preferred and less-preferred food grains. The model is explained in more detail in Roe's Appendix B (1978:189-197).

4. Concessional imports can be justified if dispersed in such a manner as to not compete with domestic producers for the consumers' disposable income. This category includes consumers who, if given free concessional grains, still spend roughly the same amount of income on food grains.

While these recommendations can be broadly accepted, it is well to bear in mind several additional problems associated with concessional imports:

1. Because food grain deficits are difficult to predict, and logistical problems can delay delivery of imported grain, the arrival of concessional imports may coincide not with seasonal or other temporary shortages but rather with the domestic harvest, severely depressing grain prices and farmers' incomes. Such an event recently occurred in Haiti.

2. The regular availability of concessional imports can lead the Government to neglect investment in food grain research and other programs designed to lower domestic production and marketing costs, and, therefore, prices to consumers. If these long-run benefits are taken into account, the positive aspects of concessional imports may not be so great as suggested by the static analysis presented above. This, however, is by no means certain.[9/]

3. The regular availability of concessional food grain imports may have a negative impact on government support for agriculture generally.

Concessional food import programs should be carefully designed to minimize these potential negative effects.

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9/ The net long-run welfare benefits (or costs) of concessional food grain imports will depend on such factors as the terms under which concessional imports are offered, the potential for reducing local production and marketing costs, and the alternative crop and livestock production opportunities available to local farmers.

## B. MARKETING CONSTRAINTS

### 1. Dispersed Production

Except for rice, the production of which is concentrated in the Artibonite, food grain production is widely dispersed. This is in part explained by factor endowments, high rural population density, lack of roads, lack of alternative economic opportunities, and the small size of most farm units. Dispersed production on small plots limits the scope for economies of scale in production as well as in marketing, where considerable resources must be allocated for product assembly and input distribution.

Marketing policies per se can do little to overcome the dispersed production constraint, with one important exception to be discussed below. Other strategies for overcoming this constraint include (1) promoting group farming, (2) increasing off-farm employment opportunities, (3) slowing the population growth rate, and (4) encouraging greater agricultural productivity through the adoption of labor-intensive biological, chemical, and mechanical inputs. Social and anthropological research suggests that the prospects for group farming in Haiti are not particularly good; but a few experiments with such efforts are now taking place--with the assistance of private groups in the Plaine des Cayes and, reportedly, DARNDR in some of its Ilots de Développement--and these projects should be watched with interest. Prospects for increasing off-farm employment opportunities in rural areas are limited unless there are prior increases in rural incomes. Because of locational disadvantages, smaller urban centers are unlikely to attract many export-assembly industries, or industries producing for the Port-au-Prince market, which for external-economy reasons will continue to concentrate in the metropolitan area. Migration to the capital and to other urban centers will of course continue, but even if family planning

programs are effective in getting rural birth rates to fall, the absolute size of the rural population is likely to continue increasing--or at best to remain stable--for the rest of the century.

The most promising strategy for overcoming the dispersed production constraint is that of increasing agricultural productivity. Particularly important in this regard are improvements in the marketing of farm inputs, the marketing channels for which have not been systematically investigated in Haiti (see below). Improved production efficiency and better road transport are likely to lead to greater specialization in crop production and geographic concentration in areas with a comparative advantage. These shifts, however, may not be too pronounced because of the small size of farm units and the preference of farmers for crop diversification as a means of risk aversion.

2. Lack of Uniform Weights and Measures/Grades and Standards [10/]

Complicated and non-uniform systems of weights and measures, and grades and standards, are frequently reported to be constraints to agricultural development in developing countries; their importance, however, is often exaggerated. Export crops tend to be marketed by internationally accepted standards (e.g., 60-kg. bags for coffee, metric tons for sugar). Where standards are desirable to encourage quality improvements, they can sometimes be introduced by the private sector. But if the industry is slow to act on its own, the public sector--even if it is not itself a major buyer (e.g. through marketing boards)--can take the lead in introducing desirable changes. In the case of sugar, for example, the governement-

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10/ For a list of Haitian weights and measures, see Duplan (1975b).

regulated price could be based on sugar content, not cane weight. For coffee and other products, quality improvements can be encouraged through differential taxation according to established grades.

For products destined for local markets, measures such as the large bag, small bag, and marmite (about 5.5 pounds) are common, though numerous other measures exist. Given the high degree of competition characterizing most trade in food grains, legumes, fruits, and vegetables, the absence of clearly defined measures, weights, grades, and standards probably does not greatly affect marketing efficiency.[11/] Information transfer among market participants seems to be reasonably efficient; and the "extra" time needed to determine quality, weight, or volume under existing conditions does not have a high value given the low opportunity cost of labor. The greatest difficulties are probably those encountered by government technicians devising data collection and monitoring systems and making price forecasts.

3. Lack of Storage Facilities

Seasonal variation in food grain prices was considerably greater in 1975 than in the late 1960s and early 1970s (see Roe 1978:92-96). This suggests that the marketing system has not expanded storage capacity fast enough to keep up with increased demand for out-of-season consumption.

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11/ Mintz (1961b) describes standards of value and units of measure in the Fond-des-Nègres market as follows:

> Different sorts of measures are used for different products, and no such unit as the ounce, readily translatable from one weight or volume measure to another, enters into calculations. Scales are not used in local trade and solids and liquids are not sold by familiar numbered unit measures of any sort. Measures vary considerably from market region to market region; many products are sold neither by number nor by weight; the same name will be used for measures of different sizes, and vice versa.

Still, Mintz found considerable underlying order in this superficially chaotic system.

Rough calculations of the cost of on-farm storage facilities (810-kg metal drums) suggest that the seasonal variations in 1975 prices were sufficiently great to justify investment in on-farm storage facilities for all grains, while in 1972 this was probably not the case (Roe 1978:97-98). Financing this necessary investment, however, could pose a serious problem for many farmers, since an 810-kg storage drum cost an estimated US$34 plus transportation costs in 1976. Even if farmers perceive the investment to be profitable [12/] --which is questionable if wide price fluctuations, a recent phenomenon, are viewed as temporary--not all of them would be able to finance it by selling livestock or land or drawing on cash savings.

How much of an investment in on-farm storage facilities would be necessary to decrease seasonal price variation to the point where no incentive exists to increase storage capacity? Roe (1978:99) roughly estimates that no more than 20 percent of the volume of grains marketed, or some 46,000 MT, would need to be stored. This volume could be achieved if 10 percent of the grain producers purchased 810-kg drums. At cost of US$34 per drum, this implies a total outlay by farmers of some US$1,900,000, plus transportation costs. The potential benefits of such a program include not only the capturing of seasonal price differentials (by all farmers) but also a leveling of seasonal variations in on-farm consumption by families with storage facilities, thus raising overall nutritional levels. Implementing a program of this magnitude would be no easy task, and failure to come close to achieving the

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12/ In addition to the costs identified above, farmers would also have to consider the risk premium for storage losses due to spoilage and theft. With traditional storage methods, losses due to damage are thought to be 10-20 percent at the farm level (Haiti, DARNDR, 1976:43), though for one region a 25 percent loss rate has been reported (Giroux, Turcan, and Desilets 1976:2). The loss rate from damage would be lower with metal drums, but the problem of theft would still exist.

targeted volume could make the investments by farmers unprofitable.

These are only preliminary calculations, of course, and more research on on-farm storage possibilities is needed. Also desirable would be a consideration of alternative storage programs--e.g. the community-level storage facilities that SENACA intends to experiment with in the Îlots program[13/] or perhaps regional facilities operated by a government marketing board.

4. Handling and Transport Costs

A country's transportation network can significantly affect the volume and spatial flow of agricultural inputs and products. Haiti has a road and highway network of 3,724 kilometers (excluding city streets), of which only 15 percent are paved (Haiti, DTPTC, 1977). Most of the unpaved roads are in poor condition and are not passable on a year-round basis. Of the 519 agricultural markets surveyed by LaGra, Fanfan, and Charleston (1975), the great majority either were not served by roads or had poor roads. The figures by Department were as follows:

| Department | Percent of Markets with no Roads or Poor Roads |
|---|---|
| Northwest | 81 |
| North | 81 |
| Artibonite | 71 |
| West | 71 |
| South | 95 |

13/ Community-level storage facilities have been suggested as desirable for the DRIPP project in the Petit-Goâve and Petit Trou-de-Nippes areas (Giroux, Turcan, and Desilets 1976:53-63). However, the authors of this study note that, because of farmers' reluctance to cooperate in such an effort, it would be advisable to have pilot projects in individual-farm storage, semi-collective storage (for 5-10 farmers) and collective storage.

In addition to the road network, the coastal transportation network is also of importance in Haiti, accounting for 18 percent of all tonnage (Haiti, DTPTC, 1977:Vol. 2). Most of the tonnage is carried in sailboats, which often have inboard motors. Coastal shipping is particularly important for Jérémie and the surrounding area in the northwest part of the southern peninsula, which has no road connections with the rest of the country. Most ports have no warehouse facilities, so ships will not leave until trucks have brought sufficient cargo. Likewise, arriving cargo may be left on board until trucks arrive, or it may be unloaded and stored, exposed to the elements, on the dock. Trip schedules are irregular, and there is no coastal fleet to assist ships in distress.

The recently completed national transport survey identified a number of transportation projects for which the economic rate of return (ERR) was calculated to be quite high. First priority was given to the rehabilitation of 127 km. of paved roads and 731 km. of unpaved roads for which the ERR was 33-39 percent. Second priority was given to port improvements to make the coastal transport network more efficient. The ERR for these projects was estimated to be 23-35 percent. Third priority was given to modernizing the shipping fleet, for which the ERR was about 25 percent.

The agricultural sector would derive much of the benefits from the lower transportation costs resulting from such investments, since 92 percent of all goods transported are of agricultural origin (Haiti, DTPTC, 1977). Producers of perishables and those in markets which are highly competitive should especially benefit. Where monopsony power exists, however, the percentage of the transport-cost savings passed on to growers is likely to be lower, though reduced transportation costs should make it possible for more buyers to enter local markets and increase competition. In Roe's view

(1978:122) the National Transport Study and another transportation study for the North tend to underestimate the social value of road construction and improvement by not adequately considering additional product value resulting from less damage to fruits and vegetables, less weight loss to animals now driven to market, and greater use of lower-cost purchased inputs. Moreover, it appears that traffic on recently improved roads exceeds the volume increases estimated prior to construction.

Investment in roads would not be an unmixed blessing to small farmers. Though raising farm-gate prices for farmers far from local or regional markets, improved transportation is likely to lower prices for those closest to the market, since supplies from more distant farmers would increase (Roe 1978:112-115). Another usual effect of improved transportation is to increase the scale of shipments and thus lower the labor-intensity of the marketing process (Roe 1978:117). Still, these negative effects probably would be comfortably offset by the positive effects to small farmers described above. There is, however, an important reservation that should be attached to this tentative conclusion. An improved road will tend to increase land values along the route and its environs, and given the unclear nature of land titles it is possible that more affluent landowners will attempt to expand their holdings by claiming title to land farmed by others. Existing road construction projects should be monitored closely to see just how serious a problem this might be.

5. Lack of Inventory Financing

Institutional credit for inventory financing does not seem to be available to farmers and intermediaries, and perhaps not to wholesalers. However, intermediaries frequently provide credit to farmers and other intermediaries.

Because of the high degree of competition that prevails in many markets, the cost of this credit and other services provided by intermediaries is thought by some observers to be relatively low (Mintz 1964), though there continue to be reports of effective interest rates as high as 25-100 percent a month. The amounts provided by intermediaries are quite small, and the absence of good storage facilities (see above) restricts the opportunities for holding large quantities of food grains for long periods.

The absence of short-term inventory financing is probably not a serious obstacle to agricultural development at this time. Given the labor-intensive nature of present marketing channels, the informal credit system functions fairly efficiently. If institutional credit were made available to permit a larger scale of marketing operations, the employment consequences would be negative.

6. Lack of Market Information

Until recently, data on market prices were published by IDAI, IHPCADE, and several other government agencies. These statistics lacked uniformity, even when collected by the same agency[14/]. This situation has begun to change with the establishment of the Service National de Commercialisation Agricole (SENACA), established with CIDA and IICA assistance in July 1976. Ultimately, it appears, data collection will be centralized in this new agency, though SENACA still has to rely on other agencies to assist in the data collection effort.

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14/ For example, the reported price of corn might be a wholesale price in one community and a retail price in another. For discussions of these and other problems with the IHPCADE and IDAI data, see IICA (1975a), IICA (1975b), and Zuvekas (1977a).

The first data published by SENACA were for the months of April, May, and June 1977, with March 1977 serving as the base period (Haiti, DARNDR, SENACA, 1977). Coverage--7 grain varieties and 15 markets (5 urban, 5 regional, and 5 local)--was more limited than SENACA had hoped, but more realistic in view of its financial and manpower constraints. Problems in securing uniform data for quality, variety, and types of fruits and vegetables had not yet been resolved. In the future, SENACA hopes to publish weekly bulletins on prices in Port-au-Prince, provide even more frequent price data to the news media, publish bi-monthly bulletins on prices in other urban areas and in rural areas, and undertake analyses of these data in quarterly and annual publications.

At this point, SENACA's efforts are probably of greater use to planners than to farmers, given the lag between data collection and availability and the lack of communications channels to rural areas. Haitian farmers seem seldom to be aware of urban or international prices, except for those products (primarily perishables) marketed directly. If marketing channels are competitive, however, farm-level prices will reflect final demand conditions. A statistical analysis of the relationship between prices in Port-au-Prince and those in 3 other urban markets suggests that markets are fairly competitive for food grains (Roe 1978:100-111), implying that the benefits of a price reporting system for these commodities might not be justified by the costs. 15/

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15/ This may be especially true because the low opportunity cost of labor in Haiti makes even small spatial or temporal price differentials important to decision-makers; and since differences in quality and negotiating ability significantly influence price, a price-reporting system would have to be find-tuned--and therefore costly--to be effective (Roe 1978:133).

For tomatoes, poultry, and bananas, however, there was either no price interdependence or inconsistent results, suggesting possible net benefits to the provision of information on these commodities. There might also be a net benefit to providing information on prices paid by licensed speculators for the crops in which they deal, though it appears that coffee farmers already are aware of price differentials (JWK: 1976a).

Providing reliable price information to small farmers will be difficult because the functional literacy rate in rural areas is probably less than 10 percent (see Chapter 3.G.5). Careful attention will have to be paid to the form and method in which price information is transmitted.

## C. INSTITUTIONAL CONSTRAINTS

### 1. Administrative/Managerial/Technical Capacity of the Haitian Cadre

The administrative, managerial, and technical staffs of the Ministry of Agriculture (DARNDR) are not well equipped to handle the significant expansion of agricultural activities made possible during the last few years by increased foreign assistance. This is not so much a reflection of the quality of Haiti's pool of middle- and high-level manpower as it is a result of the serious financial constraints under which DARNDR has been operating (see Chapters 1.I nnd 7.F). DARNDR's operational (current) budget allocations have declined in real terms during the 1970s, and real salaries have plummeted from already low levels. Sizeable numbers of well-qualified Haitians who are working abroad or in the private sector are unwilling to accept employment at the salaries DARNDR currently is able to offer.

Budgetary and salary constraints have forced the relatively small number of capable and experienced administrators, managers, and technicians in DARNDR to assume greater responsibilities. Some appear to be so overloaded that the productivity of all their efforts is bound to be affected adversely. Lacking the means to hire qualified managerial staff from the outside, DARNDR is sometimes forced to find project managers from among its technical staff, who have little training or experience in management. At the same time, managers may be asked to serve simultaneously in a technical capacity in the projects under their direction.

The structure of management in Haiti also acts as a constraint to development. Decision-making, as is typical of developing countries, is highly centralized. Middle-level staff are given little initiative,

and valuable time is lost in seeking the approval of higher authorities even on minor matters. Other problems include a lack of an effective reward/punishment system for encouraging good work, arbitrary job assignments with little regard for specific skill capabilities, and assignments with little meaningful work content.

There is evidence that major steps have been taken during the past year to remedy some of these problems. Additional administrative and managerial improvements may be expected in the coming months under an AID-funded management assistance program. Still, the continued expansion expected in the activities of foreign donor organizations will place additional strains on DARNDR, suggesting that technical assistance will be needed for longer than presently contemplated. Moreover, the scope for administrative and managerial improvements will be limited unless the budgetary and salary constraints are relieved.

At the technical level, DARNDR's present staff is limited in both numbers and in training and experience. Local agronomy graduates have little training in research methodology, or in field work generally. Agricultural technicians likewise have little field experience, and there are few research results for them to extend to farmers. Major steps to remedy these problems have been undertaken recently by several foreign donor agencies (see Chapter 7.D.3), but the benefits to DARNDR's projects and programs will be minimal until the early 1980s. Another technical skill that is in short supply is expertise in agricultural economics. This is badly needed not only to help improve the data base but also to improve the quality of analytical work with existing data. At present, policy formulation is seriously restricted by an insufficient under-

standing of economic relationships and interrelationships. Some ill-advised measures are being contemplated, while more promising strategies are not being considered at all. DARNDR's imaginative and sound policies could be implemented more effectively if detailed, micro-economic relationships were better known. Again, budgetary and salary constraints will have to be overcome if DARNDR's technical staff is to be significantly strengthened.

2. Cooperatives and Other Producer Associations

Haiti lacks a strong cooperative tradition. Its much-talked-about work groups, such as the combite, are only temporary arrangements for undertaking specific, short-run tasks. The lack of cooperatives or other permanent, base-level institutions makes it difficult to organize effective erosion control measures at the community level, and it restricts the individual farmer's prospects for increasing his/her well-being through group marketing arrangements, bulk purchases of inputs (at a discount), access to institutional credit, and other group activities.

The cooperative movement in Haiti, which dates from 1937, has never been a significant force. Though 280 agricultural cooperatives were identified in 1974, only 24 had been legally registered with the Conseil Nationale de la Cooperation (Pereira et al. 1977:4), and few apart from these actually were functioning. The majority of the active cooperatives are engaged in coffee marketing, and most have been assisted by private and voluntary organizations based in Europe or North America. International and bilateral agencies also have provided some assistance, notably in the Cul-de-Sac, where the OAS and Israel have been working with farmers producing food grains, vegetables, and tobacco. Without

continued assistance for a number of years, many cooperatives--perhaps most--probably would not survive.

Government support for the cooperative movement has been very weak. A United Nations program in cooperative formation and development, begun in 1971, has accomplished very little for lack of GOH budgetary support (Pereira et al. 1977). On the other hand, the government has been supportive of the efforts of AID and other organizations to form conseils communautaires, sociétés agricoles de crédit, and other base-level organizations with less complex structures. It is possible that some of these groups may evolve into agricultural and/or marketing cooperatives in the future; but even if they do not, they can contribute to agricultural development through self-help projects in erosion control, irrigation and drainiage, and rural road construction. Again, technical assistance probably will be necessary for a long period of time before these groups become permanent organizations capable of operating on their own.

The few producers associations in Haiti are largely confined to medium- and large-scale farm operators, such as the 17 mango producers who grow export-quality mangoes. There is probably little scope for forming national or regional organizations of this type among small farmers.

3. Production Credit

The principal institutional sources of agricultural production credit in Haiti are the Bureau de Crédit Agricole (BCA) and the Institut pour le Développement Agricole et Industriel (IDAI). Since their establishment in the early 1960s, neither of these institutions has taken major steps toward financial viability or other aspects of institutional maturity. The volume of their lending remains very low, and administrative costs per dollar of credit are exceptionally high.

a. BCA [16/]

The BCA was organized in 1959, with U.S. assistance, as an agency of the Ministry of Agriculture. Its authorized capital of ₲5 million was provided from both government budget transfers and USOM (later AID) resources. After AID suspended activities in Haiti in 1963, BCA lending declined sharply. By 1971 its loan volume was a miniscule ₲149,000, or US$29,800 (see Table 5.2).[17/] A high percentage of the BCA's portfolio was uncollectable, and repayment on much of the remainder was in arrears. As of December 31, 1976, only 56 percent of the volume of loans made through 1969 had been repaid.

Table 5.2 shows that loan volume rose sharply from its 1971 nadir to ₲2,414,000 (US$483,000) in 1977. This increase is due largely to (1) the success of efforts to form Sociétés Agricoles de Crédit (SACs), groups of

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16/ This section is based primarily on Bauman (1978).

17/ From 1959 through 1969, the BCA made 7,802 loans for a total of ₲6,210,800--i.e., an annual average of 715 loans for ₲564,600 or US$112,900 (BCA, unpublished data).

Table 5.2

Loans by the Bureau de Crédit Agricole, 1968-1977
(thousands of gourdes)

| | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|---|---|---|---|---|---|---|---|---|---|---|
| Short-Term (6-12 months) | | | | | | | | | | |
| Root crops | 85.9 | 47.9 | 47.1 | 40.6 | 57.9 | 55.6 | 42.8 | 149.9 | 180.4 | |
| Bananas | 2.7 | - | 2.0 | - | 3.2 | - | 3.3 | - | - | |
| Rice | 30.1 | 32.3 | 7.4 | 1.0 | - | - | 10.8 | 46.1 | 5.4 | |
| Land preparation | 11.5 | - | - | - | - | - | - | - | - | |
| Livestock | 93.9 | 40.3 | 55.9 | 41.3 | 67.2 | 63.2 | 118.8 | 162.2 | 244.5 | |
| Equipment | 28.5 | - | - | - | - | - | 3.2 | - | 2.0 | |
| Coffee | 110.0 | 32.0 | 82.6 | 10.0 | 72.0 | 83.4 | 85.0 | 122.0 | 13.7 | |
| Potatoes | 26.5 | 20.2 | 18.5 | 11.2 | 10.9 | 6.7 | 3.1 | 6.6 | 8.1 | |
| Peanuts | 27.6 | 22.5 | 20.5 | 27.6 | 30.7 | 48.3 | 104.1 | 32.0 | 24.0 | |
| Grazing | 0.4 | - | - | - | - | - | - | - | - | |
| Vegetables | - | - | 3.8 | 17.2 | 77.6 | - | - | - | - | |
| Sugarcane | - | - | - | - | - | - | 0.6 | - | 0.5 | |
| Poultry | - | - | - | - | - | - | 7.0 | - | 0.5 | |
| Medium-Term (3 years) | | | | | | | | | | |
| Coffee | - | - | - | - | - | - | - | 404.6 | 685.5 | |
| Other | 0.7 | - | 11.5 | 0.4 | - | - | - | - | - | |
| Total (current prices) | 417.8 | 195.2 | 249.4 | 149.3 | 319.5 | 257.2 | 378.8 | 923.4 | 1,295.1 | 2,414.2 |
| Total (1970 prices)[a] | 442.6 | 201.7 | 249.4 | 145.9 | 302.3 | 193.8 | 253.2 | 503.2 | 618.5 | 1,065.4 |

Source: BCA data reported in Bauman (1978:18); other unpublished BCA data.

[a]Current-price data deflated by the GDP deflator in Table 1.3.

7-15 farmers who jointly accept liability for BCA loans, and (2) an AID-financed program to provide medium-term (3-year) credit to small coffee growers. However, the real volume of credit did not recover its 1968 level until the coffee program began in 1975. And real lending for activities other than coffee was still 34 percent lower in 1976 than in 1968.

In 1977 the BCA made 33 loans to individual farmers under its traditional lending program, for an average of US$126. Three loans averaging US$6,520 were made to cooperatives. About 95 percent of the loan volume, though, went to 533 SACs with an average membership of 11.5 farmers. The average SAC loan was for US$833 (US$72 per member).[18/]

The maximum interest rate charged by the BCA was originally fixed at 8 percent. It was raised to 9 percent in December 1976,[19/] but this still gives the BCA far too small a spread to cover operating costs. Higher interest rates are not going to make the BCA financially viable in the next 5-10 (or even 20) years, but evidence is mounting that high interest rates not only help strengthen a credit institution but also are more likely to foster production increases than heavily subsidized interest rates.[20/] A low interest rate policy, while superficially attractive, has a number of drawbacks. First, it increases the credit institution's financial dependence on budget subventions--an uncertain source of revenue--thus restricting its ability to expand operations from internal revenues. Secondly, it helps create an ambiance in which credit is perceived almost as a government grant,

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18/ Data for 2 of the BCA's 10 offices are incomplete.

19/ SACs borrowing from the BCA at 9 percent re-lend to their members at at 12 percent.

20/ See Lipton (1976).

not as a loan. This can have an adverse effect on repayment rates. Thirdly, this ambiance does not encourage the economic use of scarce resources, thus thwarting the production and income objectives of the credit program. Nominal interest rates of 12-15 percent or more may appear, on the surface, to place a severe burden on small farmers; but with accelerated inflation in the 1970s the real interest rate actually has been declining. Moreover, farmers who pay 10 percent a month or more in informal credit markets should perceive 12-15 percent as a relatively low rate, particularly if technical assistance is provided at no additional cost. On the other hand, poor technical assistance can substantially increase the effective cost of institutional credit, and in Haiti there is good reason to be concerned about the quality of credit supervision.

With the onset of the AID-financed coffee program, the BCA's staff expanded rapidly from 14 central-office and 12 regional-office employees in 1974 to 20 and 53, respectively, by October 1977. Many of the new employees lack the training and experience desirable for agricultural credit officers. This is also true for some of the older staff members who replaced technicians trained by AID in the early 1960s and who later took advantage of opportunities to emigrate. To overcome this institutional constraint, considerable attention will have to be devoted to in-service training, with an emphasis on in-country programs.

Approximately half of the BCA's field personnel are agronomists or agricultural technicians. Regional offices without these agriculturalists rely on formal agreements with other DARNDR agencies (IHPCADE, the extension and irrigation services, etc.) to provide the necessary agronomic expertise. The quality of farmer supervision varies considerably according to the supervisor's initiative, agronomic expertise, and knowledge of farm management and the use

of credit. Relatively good supervision is reported in Beaumont and Macary, where highly motivated IHPCADE agents work with non-agriculturalist BCA staff, and in Fond-des-Nègres, La Vallée, and Cap-Rouge, where the BCA agents are themselves agriculturalists. On the other hand, neither BCA or other agency technicians appear to be providing effective farmer supervision in Hinche, Cap-Haitien, and Jérémie. The BCA management thus far has been unwilling to encourage better supervision by penalizing unsatisfactory performance.

The BCA has also been plagued by other management deficiencies. Until recently, regional office heads had only limited authority to approve loans, and all but the smallest loan applications had to be forwarded to the central office. This took up time that would have been much better spent in improving the quality of field supervision, streamlining portfolio management at both the local and national level, and expanding the size of the portfolio. All loans under the BCA's traditional lending programs continue to be processed centrally; but under the AID-financed program all loans are now fully processed at the regional level. Additional changes in portfolio management, and the publication of an operations manual in 1977, are other recent steps that have been taken to improve managerial efficiency. Still, the overall efficiency of management remains low, and both short- and long-term training programs are needed to continue upgrading it. But training will have little impact unless political support for BCA increases and managerial attitudes change.

Another institutional constraint is the BCA's image. As a dependency of DARNDR, it is easy for the BCA to be viewed--from the inside as well as from the outside--as a service agency like extension or research. The word "bank" does not appear in its title, and the physical appearance of its central and regional offices does not encourage such an identification.

One of the few encouraging aspects of the BCA's recent performance has been a significant improvement in loan recovery rates. Eighty-five percent of the amount loaned during 1970-75 and due by the end of December 1975 had been repaid as of that date. Pressures on delinquent borrowers have increased; several lawsuits have been initiated, and court rulings have favored the BCA. Legal matters are handled by lawyers whose fee is 20 percent of the amount recovered. If the amount in default is small, or the borrower clearly lacks the ability to repay, the BCA may decide that no legal action is warranted. A potential problem for the BCA is the uncertain legal liability of the SACs, whose repayment record thus far is good but may deteriorate as the program expands or coffee prices fall. If the courts decide that the SAC president is not legally liable for the group's debts, it may prove difficult to collect the small amounts owed by individual members. 21/

b. IDAI

IDAI was established in 1961 to replace a predecessor agency which also provided credit to both agriculture and industry. Its operating expenses are financed by revenues from 2 customs duties, while most of its loan funds have come from 4 IDB loans totalling US$11.4 million:

(1) 1961: $3.5 million for agriculture and industry

(2) 1971: $0.75 million for agriculture

(3) 1971: $1.05 million for industry

(4) 1977: $6.1 million for agriculture and industry

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21/ For a history of the SACs and a proposal to group them into larger organizations, see CUNA (1977).

IDAI's total portfolio at the end of 1976 was US$4.7 million, of which agricultural loans accounted for 23.2 percent and industrial loans, 13.1 percent. The balance represented loans to IDAI's subsidiary, the Societé d'Equipement National (SEN). Agricultural lending in current prices rose from ₡360,000 (US$72,000) in 1970 to ₡2,610,000 (US$522,000) in 1975 (see Table 5.3).

IDAI's agricultural loans have been based on crop production programs it has sponsored for cotton, corn, beans, and rice. It finances about 80 percent of the national production of cotton, most of which is purchased by SEN's cotton yarn plant. The fertilizers and pesticides obtained by small farmers under the IDAI cotton program have helped yields rise, according to some estimates, from an average of 550 kg./ha. before 1971 to 750 kg./ha. during the crop years from 1971/72 through 1974/75. IDAI's impact on the yields of corn, beans, and rice has been much less, since it finances no more than 4 percent of the production of these crops.

Tables 5.4 and 5.5 show that up to 70 percent of the land area financed has been for cotton, though this figure fell sharply to 22 percent in the 1975/76 crop year as prices for other IDAI-financed crops became relatively more attractive than the regulated price of cotton. During 1975/76 IDAI made 20,372 loans to finance production on 13,849 hectares--an average plot size of no more than 0.68 hectare. [22/] The average loan in 1974/75 was for about US$26.

This very low average loan amount makes IDAI's administrative costs very high per dollar of credit to small farmers. An evaluation of IDAI's operations

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22/ If some borrowers cultivated more than one plot the average would be even lower.

Table 5.3

Agricultural Lending by IDAI, 1970-1975
(thousands of gourdes)

| Year | Total Agricultural Credit | |
|---|---|---|
| | Current Prices | 1970 Prices[a] |
| 1970 | 359.9 | 359.9 |
| 1971 | 419.4 | 410.0 |
| 1972 | 997.5 | 943.7 |
| 1973 | 1,372.5 | 1,034.3 |
| 1974 | 1,562.0 | 1,044.1 |
| 1975 | 2,609.5 | 1,422.1 |

Source: IDAI.

[a]Conversions to 1970 prices were made with the GDP deflator (see Table 1.3).

Table 5.4

Distribution of IDAI Agricultural Loans, by Crop, 1971/72 to 1975/76

| | Hectares Planted | | | | | Number of Farmers | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1971/ 72 | 1972/ 73 | 1973/ 74 | 1974/ 75 | 1975/ 76 | 1971/ 72 | 1972/ 73 | 1973 74 | 1974/ 75 | 1975/ 76 |
| Cotton | 2,242 | 3,957 | 5,669 | 4,213 | 3,004 | 4,532 | 7,999 | 10,294 | 7,067 | 6,200 |
| Corn | 643 | 861 | 1,248 | 1,970 | 2,333 | 1,000 | 1,250 | 1,781 | 2,269 | 3,400 |
| Bean | 337 | 509 | 687 | 1,089 | 3,895 | 690 | 978 | 1,462 | 1,604 | 6,032 |
| Rice | 47 | 64 | 109 | 1,669 | 4,617 | 83 | 111 | 195 | 2,119 | 4,742 |
| Peanuts | 454 | 64 | 338 | - | - | 553 | 84 | 350 | - | - |
| Total | 3,783 | 5,455 | 8,051 | 8,942 | 13,848 | 6,867 | 10,422 | 11,080 | 13,059 | 20,372 |

Source: IDAI.

Table 5.5

Distribution of IDAI Agricultural Loans, by Crop, 1971/72, 1973/74, and 1975/76 (percent)

| Crop | Crop Year | | | Hectares |
|---|---|---|---|---|
| | 1971/72 | 1973/74 | 1975/76 | 1975/76 |
| Cotton | 59.2 | 70.4 | 21.7 | 3,004 |
| Corn | 17.0 | 15.4 | 16.9 | 2,334 |
| Beans | 9.0 | 8.5 | 28.1 | 3,894 |
| Rice | 1.2 | 3.5 | 33.3 | 4,617 |
| Others | 13.6 | 2.2 | 0.0 | 0 |
| Total | 100.0 | 100.0 | 100.0 | 13,849 |

Source: IDAI.

in 1973 found that the organization incurred an astounding $17 in administrative costs for each dollar loaned to small farmers (reported in USAID 1974: 48). Notwithstanding these high costs, loan supervision has been weak.

IDAI has also been plagued by a very high rate of loan delinquency. For all types of loans the delinquency rate at the end of 1976 was 46.8 percent, but for agricultural loans it was 73.8 percent, much higher than that for the BCA. Many of these delinquent loans are uncollectable.

One of the major problems with IDAI's lending program is that its operations have been restricted to crops--especially cotton--in which it has a particular interest. More profitable crops which farmers wish to grow have not been eligible for credit. Thus the cotton program, while promoting an impressive increase in yields, has not had a similar effect on production or farm incomes. 23/ This helps explain the high delinquency rate.

The recently approved IDB loan, US$2.6 million of which is to be devoted to agriculture, seeks to remedy not only the institutional constraints retarding IDAI's growth but also policy constraints in the form of crop eligibility and size of loan. These policy changes will be discussed in Chapter 6. Among the institutional reforms, one of the most important is a requirement that IDAI add 7 agronomists and 8 agricultural technicians to its staff to provide technical assistance to individual farmers or groups of farmers, thus improving their income and loan repayment prospects. The

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23/ Palmer (1976: 155-156) reports that "many farmers [in the Belladère area] were impressed by the idea of a government-subsidized commercial crop and took their land out of food production and sugar cane to plant cotton. The ruins of formerly profitable sugar mills now stand in the midst of non-productive fields of cotton."

IDB also plans to provide technical assistance to improve IDAI's central-office and branch-office management.

c. Other Institutional Sources of Credit

Small-scale credit programs have been established under the CIDA-financed DRIPP project, a regional development scheme in the Petit Goâve area, and under several smaller development projects. While a strong case can be made for closely integrating credit with other aspects of an area development scheme, and while BCA and IDAI both leave much to be desired as credit institutions, establishment of separate credit programs with a weak institutional structure is risky. It will be difficult to build good financial controls into such programs, and it will be all too easy for farmers to regard credit as just another "service" provided by the regional development organization. The proliferation of independent credit programs can only have negative consequences for the institutional health of the BCA and IDAI.

d. Non-Institutional Credit

Non-institutional credit is important in Haiti, but no systematic effort has been made to determine its scope. There is little doubt, though, that the non-institutional market is more important than the institutional market as a source of consumer credit and marketing credit. Sources of supply include friends and relatives, who sometimes charge no interest (Murray 1977:

173); private moneylenders, who may charge 10 percent a month or more; [24] and marketing intermediaries. [25]

It is difficult to say how much production credit might be made available through non-institutional markets. Much of the non-institutional (and institutional) credit obtained by small farmers is "fungible" in that it is shifted from consumption to production purposes (or vice versa) in accordance with opportunities presented by market forces (Lipton 1976). Still, there is probably relatively little non-institutional credit provided overtly for production purposes. [26] One of the few sources of such credit is the cigarette manufacturing company, which provides inputs to small tobacco farmers and deducts their cost from the purchase price of tobacco at the time of delivery. Coffee "speculators" also provide production credit (JWK 1976a). Little if any credit appears to be provided by commercial input suppliers.

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[24] In the Cul-de-Sac community studied by Murray, most loans appeared to be zero-interest transactions among villagers. Private moneylenders in the area charged 10 percent a month. Kulakow et al. (1976:19-20) found that private moneylenders in the Plaine des Cayes charged 10-100 percent interest for "short periods." Eight percent of the farmers in their sample borrowed from these sources, while 39 percent borrowed from relatives and friends (with no indication of interest rates). Mosher (1957:85-86) reported interest rates of up to 20 percent a month during the 1950s.

[25] Non-institutional marketing credit was reported in the late 1950s to be particularly important for coffee, cacao, and cotton (USOM 1959:13). Since IDAI has become heavily involved in cotton production and marketing, intermediaries are probably no longer a significant source of marketing credit for this crop. Mintz (1964) found that women working as market intermediaries provided credit to each other and to both buyers and suppliers. Competition kept down the cost of these and other services they provided.

[26] A survey in the North in the late 1950s (US-ICA 1958?:4) found that farmers borrowed mainly for consumption purposes. Of the farmers interviewed by Kulakow et al. (1976:19) in the Plaine des Cayes, 26 percent borrowed for personal expenditures, 11 percent for family needs, and 13 percent for crop activities.

4. Input Suppliers

As might be expected in view of the small volume of chemical and fertilizer inputs used by farmers, there are relatively few input suppliers in Haiti. Ten fertilizer importers were reported to be active during 1972-74, of which 3 (DARNDR and 2 private firms) were dominant (Duplan 1975a). Their market shares in these years were as follows (percent):

| | |
|---|---|
| Dartigue-Boucard Company | 22 |
| DARNDR | 21 |
| Jardin Tropical Company | 15 |
| 7 Others | 42 |
| Total | 100 |

Pesticide imports were even more concentrated, with IDAI accounting for 63 percent of the total and the remaining 37 percent divided among 7 other importers. Most of the seeds are imported directly by DARNDR.

At the farm level, most input transactions are financed by credit. The exceptions are legume seeds, where cash purchases predominate, and sorghum seeds, most of which are provided free of charge (See Table 5.6). IHPCADE distributes some fertilizer and insecticides without charge, while HACHO and the Service Chrétien d'Haiti (SCH) do the same for pesticides and seeds. ODVA provides credit for rice seeds and fertilizer, and IDAI and the Compagnie des Tabacs Comme Il Faut (CTCIF) give credit for fertilizer and pesticides. It is not known whether commercial suppliers provide credit, but if they do, the amounts are likely to be small. Cash sales are accounted for mainly by the Bas Boën project in the Cul-de Sac, DARNDR's Programme d'Urgence, and to a lesser extent

Table 5.6

Input Purchases by Type of Farm Level Transaction

(percent)

| Input | Cash Sale | Credit | Grant | Total |
|---|---|---|---|---|
| Fertilizer | 10.8 | 58.0 | 31.2 | 100.0 |
| Pesticides | 17.1 | 80.3 | 2.6 | 100.0 |
| Seeds | | | | |
| Corn | 0.8 | 55.7 | 43.5 | 100.0 |
| Sorghum | 13.3 | - | 86.7 | 100.0 |
| Rice | - | 100.0 | - | 100.0 |
| Legumes | 88.3 | 9.4 | 2.3 | 100.0 |

Source: Duplan (1975a).

IHPCADE and SCH. IDAI provides technical assistance, some of it of questionable quality, but very little appears to be provided by other suppliers.

Marketing margins for fertilizer are reported by Duplan (1975a) to be as follows (in percent, based on 100-pound units):

| | Margin | Cost | Profit |
|---|---|---|---|
| Importer | 20.6 | 3.0 | 17.6 |
| Retailer | 7.6 | 2.2 | 5.4 |
| Total | 28.2 | 5.2 | 23.0 |

These margins seem relatively high for importers but reasonable for retailers. However, the data are based on a sub-sample of the marketing institutions surveyed and refer only to transactions in the Port-au-Prince area. Thus, they may not be truly representative of input marketing margins. This raises questions concerning the competitiveness of input markets and points to a need for additional research in this area.

More information is needed, too, on the costs of inputs outside the Port-au-Prince area. Little is known about the structure of costs associated with these distribution channels.

In summary, input supply institutions are weak, and transportation difficulties very likely raise considerably the price of inputs to farmers outside the Port-au-Prince area. It is difficult, however, to determine how much these institutional constraints restrict the use of chemical and biological inputs relative to such factors as peasant illiteracy, lack of contact with extension personnel, market uncertainties, and lack of institutional credit.

5. Research

Very little agricultural research has been done in Haiti. For the most part, crop varieties and animal herds in use in the agricultural sector have developed through natural selection rather than through rational research activities.

GOH research activities are headquartered in DARNDR at Damien. Research is one of 5 services under the Division of Agriculture, one of DARNDR's 3 operating divisions. The Research Service was founded with USOM assistance during a period (1958-1962) when U.S. assistance placed considerable emphasis on crop research. Under a joint USOM/DARNDR project in northern Haiti, adaptive research was conducted on variety adaptivities, farming systems, and seed production for corn, peanuts, soybeans, castor beans, and a number of vegetables. In addition, USOM assistance helped establish the Levy Experimental Farm near Les Cayes.

The Service has been more or less dormant since 1962, and the ranks of trained personnel have been reduced through promotions, transfers, and resignations. Nationwide, the research staff now consists only of 10 agronomists, 2 agricultural technicians, and one agricultural agent. Nevertheless, the building and equipment have remained in good condition and working order. In 1977 effective research operations were limited to the screenings of open-pollinated corn varieties and bean cultivars at 2 locations, and to some simple fertilizer trials. Recent corn research efforts have also included some limited work in pest control and fertilizers. Nevertheless, from the very simple research work that has been done, several varieties of corn have been identified as suitable

for Haiti and have been distributed from time to time to local farmers. Some early varieties distributed were developed by Cornell; more recently Pioneer-developed corn has been introduced. CIMMYT and Virginia Polytechnic Institute are currently providing seed materials and technical assistance to DARNDR through AID sponsorship.

Litzenberger (1973) observes that research support to legume crops, particularly beans, has been limited generally to ad hoc introduction of improved varieties from neighboring countries rather than original research undertaken in Haiti. IICA has supported some field research in bean diseases and pests in Haiti (see Vakili 1973; Kaiser and Meléndez 1973) and has provided some control measures, including seed of improved resistant varieties. Recent research on mung beans has been conducted through a Mennonite assistance program near Grand Rivière du Nord with the cooperation of the University of Missouri (Litzenberger 1973). Results have not yet been published.

A Taiwanese research assistance program has been active in rice variety testing in the Artibonite region for several years with positive results. The Chief of the Taiwanese Agricultural Mission reported considerably higher yields in 1977 (using newly introduced varieties) than in 1976. Bonnefil (1954) conducted and published original research on rat infestation and rat control in the rice producing areas of the Artibonite.

The World Bank recently began a research project in the North that more or less picks up where the USOM-supported project left off in 1962. The present project provides for 3 expatriate agronomists who will conduct adaptive research with corn, sugarcane, and manioc.

Since 1972 the Israeli Mission has been working with 13 farmer cooperatives in the Cul-de-Sac area to improve farming systems. This research and extension effort has resulted in the introduction of improved varieties of corn, sorghum, beans, vegetables, and tobacco as well as in improved management and field practices.

The French Agency of Assistance and Cooperation is presently assisting DARNDR in the Development of a national seed program including the construction of a seed processing facility at Damien.

AID's Agricultural Development Support I project (operational 1973-1978) provides assistance to DARNDR in screening 13 varieties of corn, constructing seed storage and processing facilities, and increasing the production of superior varieties. DARNDR has assigned 2 graduate agronomists and 2 technicians to the project site at Levy Farm near Les Cayes. A U.S. agronomist is also assigned full-time to the project. Final variety screening is scheduled for completion in April 1978. Two successive crops of 9 hectares of seed maize are to be planted in May and October for distribution to local farmers in February 1979. The AID-funded Integrated Agricultural Development project (1976-79) provides DARNDR assistance in adaptive research to develop optimal farming systems--including crop and variety introduction, genetic upgrading, and appropriate inputs and cultural practices--and research in forestry, water management, and soil conservation. The Small Farmer Development project was amended in FY 1978 to initiate adaptive research in coffee production, anticipating that this effort would be institutionalized under the proposed Agricultural Development Support II project. This research will be aimed at screening genetically efficient, rust-resistant coffee varieties and starting work on the development of optimal cultural systems.

The Agricultural Development Support II project will also assist DARNDR in strengthening its institutional capacity to carry out a national program of research and statistics, the ultimate goal being to increase agricultural production nationwide, particularly on small farms. Planned activities include renovation of existing facilities, purchase of equipment and vehicles, construction and equipping of a research station in the Central Plateau, provision of weather gauges to field research stations, and technical assistance, as well as the processing of aerial photos and related analysis necessary to create adequate land-use baseline data for research and planning purposes.

The various research activities described above can be viewed as inadequate in the sense that many data gaps are not being addressed. In a more important sense, however, the research agenda is overambitious because of limitations on DARNDR's institutional capacity to absorb the amount of assistance being offered and to play a significant, active role in directing and implementing these activities so that true institution building will in fact be taking place. There is a real danger that too many demands, especially on personnel, are being made on DARNDR. A more modest program in agricultural research would seem to be more appropriate at this time.

6. Extension[27/]

The Extension Service of DARNDR is one of 7 services under the Division of Agriculture. As of 1976 its Central Office in Damien employed 13 people. In addition to the Chief of the Extension Service the technical staff consisted of two agronomists, one rural youth specialist, and two home economists. The field staff consisted of 131 agricultural agents, 55 home economists, five 4-C Club monitors (technicians) and 5 home economics supervisors. The extension agents and home economists are stationed in rural field locations as well as at the 13 District Offices. The 4-C Club monitors and the home economics supervisors are located in Port-au-Prince and in the larger towns.

The Extension Service is divided into 5 technical sections, an administrative section, an information section, 13 field sections, and the "Ilots de Développement" sections. There are overlaps between the Ilots projects and the field offices since some staff are assigned simultaneously to both. Personnel are also assigned directly to specific foreign donor projects. A USAID/Haiti memorandum of 18 April 1978 reported, for example, that 6 Haitian extension agents and one technician were assigned permanently to the Israeli-assisted Bas Boën Project.

Although DARNDR's organization chart indicates an orderly, logical line of command within the Extension Service, reality is somewhat different (Bertrand et al. 1976). The agronomists heading the 13 District Offices report directly to the Director General of DARNDR. While personal relationships between District Agronomists and DARNDR Division Chiefs result in some modification of this pattern, it is genrallly true

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27/ This section is based largely on Bertrand et al. (1976). While some changes have been made in the Extension Service since this evaluation was undertaken, the picture remains basically the same today.

that the Director General makes the final decisions regarding administrative questions arising from the District Offices. The organizational lines between field extension agents, District Agronomists, the Chief of the Extension Service, and the Chief of the Division of Agriculture are blurred. Personal relationships rather that formal organizational charts seem to determine information channels and the criteria upon which decisions are based. Still, the Director General of DARNDR generally makes the key decisions regarding the hiring and firing of Extension Service field staff, their reassignment, and their assignment to specific tasks.

These patterns tend to isolate the Chief of the Extension Service from his field personnel. As noted above, this is in part due to personal relationships, but it also results from the Central Office's lack of operational resources. The result has been described as a "highly tenuous, if existent" relationship between the Extension Service's Central Office and its field staff (Bertrand et al. 1976).

The Central Office has no operating budget and cannot send out leaflets or bulletins because it lacks paper and is without production equipment. Thus it is unable to fulfill its primary functions of planning, report writing, preparation and provision of extension materials for field personnel, and field staff training. Its actual work consists mainly of preparing reports and plans for donor agencies and preparing its annual report and budget. The field staff of the Extension Service is likewise almost completely unable to perform its functions, which include such activities as community development work, organization of 4-C Clubs, and distribution of agricultural inputs to farmers. As of 1976 the Extension Service had only one vehicle and a gasoline allotment of just

25 gallons a month.

Agricultural inputs distributed by DARNDR through the Extension Service appear to be distributed primarily through the offices of the District Agronomists rather than from field extension locations. Field agents generally have no office space and instead operate out of their homes or their rooms. They have no accounting or record-keeping facilities or responsibilities.

The Chief of the Extension Service and the Central Office technical staff have fairly good educational and work experience. Of the 131 field agents, though, only 27 have received certificates from the 2-year middle school at Damien. The others have been trained on the job, and their expertise varies considerably. Agents trained on the job, it is reported, have been largely political appointees. A similar situation exists, apparently, for the home economists.

In evaluating the effectiveness of the Extension Service, the MASI team (Bertrand et al. 1976:49) came to the following conclusion:

> In spite of the fact that the Extension Service has a small group of well-trained and very dedicated personnel, very little activity that could be characterized as extension work in the usual sense is being carried on by central office and/or field office personnel. In part, this lack of activity is based on a virtually complete absence of operating resources in either the field or central offices. In part, it is due to a lack of material and information to extend to agricultural producers, given the paucity of research results. In part, it is due to the poor preparation of many extension agents and the very limited capability of agents to reach farmers due to an extremely poor road and trail system. Putting all of these restraints together provides an obvious explanation for limited and/or non-existent activity on the part of the Extension Service personnel.[28]

Other public agencies provide extension services of one kind or another, but the quality of performance is generally poor for reasons

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[28] Extension agents working on the Bas Boën project are an exception to this general picture of ineffectiveness.

similar to those accounting for the ineffectiveness of DARNDR's Extension Service. There are also numerous small agricultural extension efforts undertaken by various private (mainly religious) groups throughout Haiti (see section C.7 below). The quality of these services varies but generally is low. All these programs serve a small, isolated clientele, and even when sufficient resources are available to meet the limited goals set by these groups the desirable level of technical expertise is frequently lacking.

7. Other Services

a. L'Office Nationale d'Alphabetisation et d'Action Communautaire (ONAAC) was created by Presidential Decree on 23 January 1969 to introduce a system of "functional education" tying an adult literacy program (beginning with Creole, with French gradually introduced) to community awareness and development. It replaced L'Office Nationale d'Education Communautaire (ONEC), which had a more traditional approach to adult education (evening classes not directly related to the lives of the people). The term "Community Council" has been applied to the rural groupings through which ONAAC's program has been implemented. (The Community Councils are not always formed by geographically contiguous residents because of the dispersal of landholdings and other factors.) ONAAC (as was ONEC) operates under the Ministry of Education, an arrangement which resulted from dissension within the Ministry of Agriculture, which formerly had full responsibility for rural education.

ONAAC field employees, called "Agents Polyvalents," are responsible for organizing Community Councils, implementing a literacy program related to immediate agricultural and other community problems, and assisting in actual attempts to solve locally-defined problems about which members of the community are concerned. ONAAC was neither

mandated nor funded to engage in actual development projects. Rather, its function, in addition to conducting adult literacy programs, has been to work with other development agencies. Often these agencies provide a supplementary salary. The World Food Program, since 1975, has supplied food rations to ONAAC agents in support of the literacy program. There have been mixed reports as to the acceptability and effectiveness of this support program.

ONAAC has suffered from insufficient funding from its beginning. Funds that were supposed to have come from taxes on sugar and coffee have not always been received, and agents are not regularly paid. Low morale has been a major problem.

b. Animation Rurale functions within the Ministry of Agriculture and plays a role similar to that of ONAAC. Its purpose is to organize the rural population and orient it toward defining goals and finding solutions to local problems. Animation Rurale works through the Rural Education/Agricultural Districts.

The animateur (change agent) has the key role in the process of community development. Currently, Animation Rurale employs 45 animateurs, who work with various voluntary agencies, GOH agencies, inter-governmental agencies, and religious and other private agencies.

The animateurs, like the ONAAC agents, have suffered from low salaries and irregular pay (though the problem is not as serious as in ONAAC). The lack of effective program coordination has also contributed to low morale. Some overlap of assignment area has operated as a constraint to both Animation Rurale and ONAAC. A good case can be made for merging these two agencies.

c. The Haitian American Community Help Organization (HACHO) is an autonomous organization which was established in 1965. Its initial objectives were to provide assistance for the development of rural

communities in the Northwest in the fields of health, nutrition, education, and agriculture, with the effective participation of the concerned population. HACHO has drawn upon both ONAAC and Animation Rurale personnel. Since late 1975, increased attention has been given to agricultural development projects, particularly in soil conservation and irrigation.

The area covered by HACHO is so large that careful coordination of program activities has been difficult. Frequent droughts result in the failure of some programs, debilitation of the population, and diversion of funds and personnel from development to relief programs. Aside from problems of internal coordination, there was not, until recently, any systematic communication between HACHO and the GOH Ministries of Agriculture and Health. HACHO attempted, without success, to relate its road-building program to that of the Ministry of Public Works, which refused to make equipment available to HACHO.

d. Voluntary Agencies: CARE, CWS, and CRS have been working in Haiti since 1959. During the period 1963-73, when there was no USAID Mission, they received some project support from the Ambassador's Fund, which together with PL 480 and private funds enabled them to undertake programs in community development, institutional assistance, and disaster relief. The 3 agencies divided their operational areas roughly as follows (although there was some overlap): CARE worked in the North and Northwest; CWS in the Port-au-Prince area, on the island of La Gonave, and in the Southeast (particularly Jacmel and Belle Anse); and CRS in the Southwest. CWS has had a particularly effective Community Development Team including an engineer, an agriculturalist, and a community development orgainzer. CARE has conducted an extensive school feeding program.

CRS has worked through Secour Catholique, which has well-organized community-level institutional structures.

CRS and CWS have had serious difficulties in gaining GOH recognition and in getting reimbursement for inland transportation. CWS was able to negotiate a contract in 1972, but CRS still does not have one. CARE was in a favored position because of its relationship with HACHO. Transportation and warehousing have been sources of problems. Limited funding has placed constraints on the CRS and CWS programs.

e. Religious Organizations. Roman Catholic groups have educational, health, and community development programs throughout the country. Among the more effective community development programs are those in Laborde, in the South; Papaye and Thomasique, in the Central Plateau; several communities in the Cap-Haitien area in the North; and Gros Morne in the Northwest. Each of these programs has good leadership training.

Protestant churches, as traditionally has been the case, began their social service efforts in the fields of health and education. More recently, they have been doing work in agriculture and community development. Among the well-established programs are those of the following groups:

Methodists: Community development in Jérémie in the South; leadership training (education and community development) in Port-au-Prince

Baptists: Community development, reforestation, agriculture, and health in the Limbé area in the North

Nazarenes: Health, education, agriculture, and community development through churches in different areas

Mennonites: Health, agriculture, and community development in the Grande-Rivière-du-Nord area

Episcopalians: Trade school in Port-au-Prince; agriculture and health in the Léogane area

Oriental Mission Society: Public education through radio and reforestation in the North

Christian Mission of Haiti: Community development in the Central Plateau

The effectiveness of these efforts is limited by lack of coordination, limited funds, and limited technical expertise. Also, benefits tend to be confined to rural residents affiliated with with respective churches.

# CHAPTER 6

# NATIONAL-LEVEL (POLICY) CONSTRAINTS

## A. TAX POLICY

The only significant taxes affecting agricultural decision-makers are those on exports. There is no tax on agricultural land, and the absence of a cadastral survey would make it difficult to impose one even if considered desirable for encouraging efficient land use.[1/] Agricultural machinery and other inputs enter the country duty-free. Transactions taxes on commodities traded in public markets were abolished in 1974.

Almost all export tax revenues are derived from specific and *ad valorem* duties on coffee. These almost certainly have acted as a disincentive to exports. As early as 1949 a U.N. Mission to Haiti recommended a reduction in coffee export taxes, then about 16 percent of the FOB price, in order to stimulate exports.[2/] Coffee prices subsequently declined, but taxes on a 60-kg bag were raised from about US$10 in the early 1950s to US$16 by the late 1960s. As a share of the FOB price, coffee export taxes reached a high of 36 percent during 1967-69, when the FOB price averaged US$45 per bag.

From 1964 thru 1972 Haiti consistently failed to meet its coffee export quota, losing approximately US$38 million in foreign exchange during this period. Part of this loss can be attributed to hurricane damage and other factors not related to export taxes; but Tanzi (1976:69) argues that, over the long run, the export tax structure was probably the most important factor causing production and exports to decline.

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1/ Effectively administering such a tax would in any event be beyond the present capabilities of the tax authorities.

2/ See Tanzi (1976:69). Most of our discussion of coffee export taxes is drawn from Tanzi's article.

While coffee production fell from an average of 611,000 bags during 1960-64 to 520,000 bags during 1969-72, sales for local consumption increased, as might be expected, rising from 181,000 bags to 205,000 bags over the same period. Still, there was a slight decline in per capita local consumption.

The differential export tax on various qualities of coffee (US$13.70/bag for washed Arabica, US$17.40 for unwashed Arabica, and US$17.70 for "brokens," prior to August 1973), provided insufficient incentive for greater production of washed coffee, which commands a premium in export markets.[3/] Accordingly, washed coffee continued to account for only about 10 percent of all coffee exports.

The coffee tax revisions of August 1973 established, for washed coffee, a specific duty of US$4.60 per bag and a variable ad valorem rate ranging from zero, when the FOB price was US$45 and lower, to 19 percent when it exceeded US$75. For unwashed or broken coffee the specific duty was US$8.60, and the ad valorem schedule was the same as that applied to washed coffee. The growth of cooperatives was encouraged by lowering their export taxes by US$4.00 per 60-kg. bag. For export prices prevailing in the 1960s and early 1970s, the new tax structure significantly decreased the effective rate of taxation.[4/] No greater incentive was provided, however, for increased processing of coffee in washed form.

In April 1977, when coffee prices were very high, a surtax was imposed in the form of a graduated specific duty on all types of coffee whose FOB price exceeded US$50. The highest levy was US$0.01 per pound (US$1.32 per 60-kg bag) for coffee whose export price exceeded US$1.60.

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3/ For a discussion of the obstacles faced by farmers in selling coffee cherries to washing plants, see Chapter 3.D.2. The tax incentive apparently has been insufficient to compensate for higher marketing costs.

4/ For example, under the new schedule, the tax on a bag of unwashed coffee with an FOB price of US$50 was US$11.10 (8.60 + 2.50), compared with US$17.40 prior to the revision.

Given Haiti's very small share of the world coffee market, the export tax is borne by the domestic economy and is not shifted forward to foreign consumers. Within the domestic economy, in Tanzi's view (1976: 70-73), the marketing system is sufficiently oligopsonistic so that the tax falls most heavily on producers. However, Roe (see Chapter 3.D.2) found that farm-level prices were highly correlated with FOB prices, suggesting the possibility that exporters' share of the FOB price varies inversely with the effective rate of export taxation, which because of the specific-tax component increases as export prices fall. Additional research would be needed to clarify this issue. An important aspect of this research would be a careful evaluation of the quality of the farm-level, wholesale, and FOB price data for coffee. It is widely believed that coffee exports are underinvoiced in an effort to evade both export and income taxes. But neither the degree of underinvoicing, nor its variation in accordance with trends in true FOB prices, is known.

While export taxes have acted as a disincentive to coffee production, lowering the tax rate might present several problems. First, there would be a loss of revenue, a particularly disturbing development since recent trends in budgetary revenue collections have been disappointing in view of Haiti's professed development objectives (See Chapter 1.I). Agreement on a substitute source of revenue would be no easy task. One way to resolve this dilemma would be to eliminate the specific tax (and surtax)and raise the variable ad valorem rates. Such a scheme would minimize disincentive effects, not only when prices are low but also when they are high and farmers are able to absorb higher tax rates. The range of ad valorem rates would be designed to yield, over the long run, the same revenues as the present tax system. [5/]

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5/ If alternative sources of tax revenue are agreed upon, of course, the entire rate structure could be lowered,further stimulating coffee production.

A second reason to be concerned about the effects of lower export taxes relates to income distribution. The effect on income inequalities depends on tax incidence and the use of oligopsony power, subjects for which we lack good information. If exporters do in fact have significant market power, lower taxes would not necessarily be reflected in higher farm-level prices; the distribution of income, ceteris paribus, would become more unequal.

The current tax on sugar exports is 15 percent of the FOB price up to US$8.00 per 100 pounds, plus marginal rates of 25 percent in the US$8.01-15.00 range and 30 percent when prices rise above US$15.00. This tax, combined with price controls at the producer level (see below), has discouraged production. Export volume declined considerably from the mid-1960s to 1974, and rose sharply in 1975 only because of high world market prices. Since then the downward trend has been resumed, and Haiti is well on the road toward becoming a net sugar importer.

Finally, we may mention briefly the tax on the production of essential oils--20 percent in the case of vetiver. Discussions with industry sources suggest that this tax is passed on to the consumer. Given the strong world market demand for vetiver and lime oils, the tax does not appear to act as a serious disincentive.

## B. MONETARY POLICY

Haiti's financial system is still at a rudimentary stage of development. Monetary policy is conservative, and monetary expansion seems to have had little impact on domestic prices. During the period of rapid inflation from 1972 to 1975, the money supply increased only by about half the rate of inflation. 6/

The BNRH, the central banking authority, has few discretionary policy tools. For example, it has no legal authority to set interest rates, which are changed by government legislation. It also lacks the authority to influence the allocation of financial resources by other means, e.g. through establishing minimum commercial-bank portfolio requirements for specific sectors of the economy such as agriculture. It does not even receive information on the sectoral distribution of credit. The BNRH's commercial-banking operations give it the potential to affect the allocation of its own financial resources, but there is little evidence that this potential has been exercised.

The limited information available suggests that Haiti's 12 commercial banks (including the BNRH) deal almost exclusively in short-term, commercial lending. There is practically no production credit for agriculture, though export credit, especially for coffee and sugar, is common.

Given the present characteristics of the commercial banking system, it is unlikely that significant additional amounts of private bank credit to agriculture would be stimulated by giving the BNRH more discretionary policy tools. Domestic monetary and credit policy, then, should not be regarded as a major constraint to agricultural development.

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6/ The velocity of money increased, however, as depositors shifted from cash balances into interest-bearing deposits to seek protection against accelerating inflation. This shift was encouraged by a rise of time and savings deposit rates of 2-4 percentage points, to 6-8 percent.

Another sphere of monetary policy is exchange-rate policy. By closely controlling monetary expansion and allowing the domestic economy to adjust downward or upward in response to foreign-exchange movements, the exchange rate has been maintained at ¢5.00 = US$1 since 1919--even in the face of a substantial differential between domestic and foreign inflation rates during the 1970s (see Chapter 1.A). While recent trends may seem to be an indication of decreased export competitiveness, it is possible that production costs for Haitian exports have risen less rapidly than the overall level of domestic prices. This situation should be examined in some detail.

C. PRICE POLICY

There are relatively few direct government controls on agricultural prices at the producer level. The most important are those on sugar and cotton prices, discussed in Chapter 3.D.2. In 1975, even after a significant increase in the controlled farm-level price, cane growers were still paid only US$9.00 per ton, compared with US$12.00 in the Dominican Republic. This policy artificially encourages the substitution of other crops for sugar cane, which would be more profitable (when international prices are high) if farm-level prices were allowed to reflect world market conditions.

Sugar prices are also controlled at the wholesale and retail level. The quantity of sugar demanded by domestic producers is thus greater than it would be if prices were market-determined. Decontrolling sugar prices would be an unpopular step, since consumers far outnumber producers; but if it is not taken sugar imports, which occurred in 1977, could become permanent.

The small farmers who grow most of Haiti's cotton could be paid a higher price for their product, but unless IDAI's cotton-yarn plant also undertook production and marketing reforms, its already large deficit would only increase. [7/] This experience suggests that the prospects are not good at this time for efficiently operated public marketing boards guaranteeing minimum prices to farmers.

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7/ It is reported that the plant has a 2-year inventory of cotton thread.

D. CREDIT POLICY

Government policy grossly neglected agricultural credit during the 1960s. Both IDAI and the BCA were given very low and erratic financial support, and this was reflected in declining credit volume and institutional deterioration. The situation has improved since 1970, as both institutions have been encouraged to seek external loans to increase their lending capacity. Still, as described above (Chapter 5.C.3), IDAI and the BCA remain weak institutions.

Credit policies which have acted as constraints to agricultural development have included:

1. Restrictions on crops eligible for financing, thus discouraging increases in the production of relatively profitable crops.

2. Approval of mini-loans with very high ratios of administrative costs to loan amount and no long-term benefits to borrowers. This is what might be called "maintenance lending," not development lending.

3. Relatively low interest rates which have restricted the ability of IDAI and the BCA to move toward financial viability and which may have encouraged an uneconomic allocation of resources by farmers--i.e., overuse of fertilizers and pesticides, poorly applied, relative to improved, labor-intensive practices such as crop rotations, weeding by hand, and care of coffee trees.

4. Deficient loan recovery procedures which reinforce attitudes toward credit as a "service" rather than a contract under which the borrower has a binding obligation to repay.

In addition, the government apparently has given little consideration to merging the BCA and IDAI in order to avoid duplication of services and thus lower administrative costs as a percentage of loan volume. Because the organizations are both small and have similar small-farmer loan programs, there is a good *prima facie* case for combining them into a single institution, or, alternatively, for letting IDAI concentrate on industrial lending.

It is difficult to justify separate institutions unless one of them clearly is destined to become a financially viable development bank dealing principally with large and medium-sized farmers and with cooperatives, while the other has as its clientele individual small farmers or groups of small farmers who can be provided with credit only if the institution is permanently subsidized. At present, it is not at all clear that the government intends for IDAI and the BCA to move, respectively, in these different directions. If such a course is eventually decided upon, the government should be able to justify to itself that the benefits of such an arrangement are justified by the costs of the subsidy.

During the 1970s the BCA has taken steps to overcome some of the policy constraints identified at the beginning of this section. The formation of Sociétés Agricoles de Crédit (SACs) has helped lower the ratio of administrative costs to loan volume, and loan recovery procedures have improved. There continues to be resistance, however, to raising the interest rate on loans to small farmers.

With regard to crop eligibility, a special program restricted to a single crop as important as coffee can be justified to a large degree. However, since most coffee farmers are also involved in the production of other crops, consideration should be given to revising the present AID loan for coffee production to also permit the financing, on the basis of an overall farm plan, of crops grown by small farmers in conjunction with coffee. Alternatively, this kind of program could be postponed and serve as the basis for a second AID loan destined to benefit coffee producers.[8/] Consideration might also be given to including consumer credit in the loan package offered to farmers, as suggested by Lipton (1976), though the amount of such credit should be modest and the program regarded as experimental. On the other hand, low priority

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[8/] Tentative approval was recently given for using coffee loan repayments to finance food crop production, so long as sufficient funds are available for coffee. The change this writer proposes is more comprehensive.

should be given, in this writer's view, to the BCA's request, supported by Bauman (1978), to include long-term financing for rural housing under a proposed new AID loan to the BCA. As presently structured, the BCA is not an appropriate vehicle for this type of lending.

One of the major policy reforms to be implemented under the new IDB loan to IDAI is a switch from a limited number of crop campaigns to a focus on overall farm plans taking into account each farmer's particular combination of resources, objectives, and market opportunities. In addition to cotton, corn, beans, and rice, farmers would also be eligible to receive credit for the production of bananas, sugarcane, peanuts, vegetables, sorghum, millet, cassava, and yams. Bananas and sugarcane are believed to have been particularly profitable crops in recent years. A limited amount of credit would also be made available for livestock production, but only when combined with improvements in livestock feeding techniques. The program does not, however, seem to include a consumer-credit component.

The new IDB loan also establishes minimum loan amounts. This policy not only should help IDAI reduce administrative costs but also should enable it to concentrate on true development lending offering farmers an opportunity for sustained increases in income. IDAI would thus eliminate what this writer calls "maintenance lending," tiny loans offering little potential for long-term growth in farm production and incomes. A new supervised credit sub-program establishes a minimum amount of US$500 for individual farmers or those belonging to cooperatives. This sub-program is aimed at 4,000 medium-sized farmers (by Haitian standards) growing the crops identified above on a total of 11,500 hectares. A second sub-program is aimed at 8,500 small farmers cultivating 8,000 hectares. The minimum loan amount in this case is US$200. IDAI has indicated an interest in organizing credit societies and has approached the BCA for assistance in this area.

Finally, the new IDB loan program establishes tough requirements on IDAI for reducing its delinquency rate on agricultural credit. Prior to the first disbursement, IDAI is to reduce its delinquency rate to 40 percent, and by the fourth year the rate is to have been brought down to 10 percent. This is an ambitious objective, but it is one that is necessary if IDAI is to escape from its long period of institutional infancy and move toward becoming a mature development banking institution.

## E. LAND TENURE AND LAND REDISTRIBUTION POLICIES

Small plots and a relatively low concentration of landholdings have characterized Haitian agriculture since independence, when the government broke up large plantations and distributed land to former slaves and soldiers. Inheritance laws encouraged further subdivision, a process that accelerated with population growth. At the same time, government policy permitted fairly large plantations--mainly in sugar and sisal--to operate. Though the number of such holdings has been underreported, it seems clear that they do not dominate Haitian agriculture to the same degree as large farms in Latin American countries.

The Haitian government itself is also a major landholder; some of its land is leased by private farmers or companies, while other State land reportedly is occupied without payment of rent. During the late 1940s a government agricultural colony was established at Baptiste, close to the border with the Dominican Republic; but the colony received little support, and the government eventually abandoned it (Palmer 1976:96-97). While the State probably owns a great deal of land in rural Haiti, it is not clear how much of this land is suitable for farming and thus available for distribution to or colonization by small farmers now living in areas where there is great pressure on the land.

The present tenure insecurity is cause for concern about who will ultimately benefit from the rural investments that the government and international donor agencies are interested in financing. A cadastral survey could help clarify the extent and tenure status of private landholdings as well as the nature and extent of State-owned lands. As we have already indicated, a cadastral survey exists only for the Artibonite, and it is being updated under an IDB-financed development program for that region. A cadastral survey is also planned under an FRG-assisted project in the Gonaïves area.

The government has indicated its intention to expand these efforts to the rest of the country, but progress appears slow. It should not be automatically assumed that a cadastral survey will be a good thing for small farmers. It might only pave the way for land-grabbing by the relatively wealthy under a cloak of legality. Brisson (1976:8) has warned that peasants are suspicious of any government action affecting land tenure, and this suggests that preliminary research to clarify the pros and cons of a cadastral survey in Haiti should precede any attempt to start one. Suggestions for research on this subject are offered in the concluding section of this study.

Little serious consideration has been given, apparently, to consolidation of small landholdings into larger individual, cooperative, or communal farms. 9/ The case for cooperative or communal farming in Haiti is strong, since technological options would be increased and a vehicle provided for the dissemination of technical assistance and the provision of credit at much lower administrative costs per farmer than is now possible. This need not involve an end to private ownership of land, nor does it imply a displacement of labor. Increased use of capital inputs certainly is desirable, and a shift to more intensive farming and an increase in irrigated land area should actually increase the demand for labor.

Most knowledgeable social scientists seem to think that there is no strong historical basis for cooperative or communal farming in Haiti. Cooperative work arrangements--the _combite_ and the _escouade_, for example--do exist, but they are very short-term arrangements and seem to lack any kind of permanent

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9/ Suggestions along these lines have been made by the authors of the National Transport Study (Haiti, DTPTC, 1977: Vol. VI (Draft), Appendix 4F, p. 2) for the Central Plateau; Pierre-Charles (1967:230-239); and Steverlynck (1976:67-68).

structure. Moreover, Haitian farmers are said to cherish the independence hard-won by their ancestors. Notwithstanding these unpromising conditions, this writer believes that the potential benefits of cooperative or communal farming in Haiti are so great that additional research should be undertaken to see if the (admittedly formidable) barriers can be overcome. This, too, will be discussed later.

There seems to be relatively little scope for redistribution of large landholdings to small farmers or to landless rural laborers. As noted earlier (Chapter 3.C), the percentage of land that might be considered suitable for redistribution is not as high as in most Latin American countries. Much of the State-owned land is probably unsuited to food crop production, and this may be true also of some of the large private holdings, particularly those previously devoted to sisal production. A significant agrarian reform "constituency" does not appear to exist, either among the rural poor or the urban intellectuals who have remained in the country. In the absence of any meaningful pressures, little action to redistribute either public or private lands is likely.

## F. POLICIES AFFECTING RURAL LEVELS OF LIVING AND INCOME DISTRIBUTION

The "fundamental objective" of the current 5-Year Agricultural Plan is said to be an "improvement in the level of living of the rural population" (Haiti, DARNDR, 1976b:98). In addition, as we have seen, the Plan calls for a narrowing of income discrepancies. But the connection between policies and programs, on the one hand, and objectives, on the other, is tenuous. This is particularly true for income redistribution, for it is not at all clear that the government's proposed agricultural and rural development programs will always favor the most disadvantaged individuals, groups, or regions. The "Îlots de Développement" strategy--based on integrated rural development programs in "mini" growth poles and constituting an important part of the Ministry of Agriculture's overall strategy--actually favors communities which are relatively well endowed with basic infrastrucuture (Riaño-Serrano 1975:3). In addition, the programs of HACHO (Haitian American Community Help Organization) provide more benefits the greater is the prior income level of program recipients (Pfrommer et al. 1976:135-137). Members of the Community Councils, which the government supports and says it would like to see develop into agricultural production cooperatives (Haiti, DARNDR, 1976b:116-119), tend to be among the more affluent members of their communities (Gow 1977:18). (Most are still poor enough, though, to be included in AID's target population.)

These trends are not particularly surprising; nor should they necessarily be criticized. Indeed, it makes a good deal of sense to begin rural development programs in those communities or among those individuals in the targeted low-income population who are most likely to be receptive. To begin where problems are the most intractable is to court failure and to diminish the chances of expanding the scope of rural development programs to communities

where change is more easily accomplished. If programs are started instead in the latter communities, there is a better chance that unforseen obstacles can be overcome. A program that is successful in relatively prosperous (but still poor) communities then has a good chance of being extended to even poorer communities, either directly or indirectly through demonstration effects.

This does not mean that the "poorest of the poor" should be entirely neglected. Expenditures on education, public health, and transportation, for example, if designed carefully to benefit specifically these individuals, can play an important role in making levels of living more equal, even though there might be no short-run effects on the distribution of per capita incomes. In theory, a more progressive tax structure could help narrow rural income disparities, but administrative and other difficulties limit the options open to policymakers. Transactions taxes on domestic foodstuffs have already been eliminated, to the benefit of small farmers, but small farmers may not gain from additional export tax relief. Still, consideration might be given to lowering export taxes, especially on coffee, and to replacing the lost revenues with additional taxes on goods and services consumed by upper- and middle-income groups.

Returning to the expenditure side of the budget, the road construction projects now underway have potentially significant effects on rural incomes (but not necessarily income distribution) because they should lower the costs of marketing. Current efforts in education are much less promising for improving rural levels of living (USAID/Haiti 1977:122-129). Programs in health, nutrition, and family planning lack direction, and per capita spending in these areas amounts to only about $1.20 annually (USAID/Haiti 1977:103-121).

In summary, there is little likelihood in the near future of a general increase in rural levels of living. Some communities will benefit from government programs or from high world market prices for export crops, but these gains will be offset by deteriorating living standards in areas where the productivity of agricultural land is declining because of soil erosion. A general rise in rural levels of living will require increased food consumption and better nutrition, and until the soil erosion problem is tackled on a large scale it is difficult to see how this can occur.

## G. EMPLOYMENT POLICY

To the limited extent that the Haitian government has a policy toward rural unemployment and underemployment, it consists of (1) expanding irrigation and promoting more intensive farming in lowland areas, in cooperation with foreign donor agencies, [10] and (2) transferring "surplus" rural labor to other sectors of the economy, particularly industry. [11] Since little is being done to colonize idle State lands in the Central Plateau, [12] to promote rural handicrafts, or to encourage industrial development in Cap Haitien, Gonaïves, and other smaller cities, government policy implicitly is encouraging continued rapid migration from rural areas to Port-au-Prince.

The lack of focus on employment, as we have argued above (Chapter 3.F), is not necessarily to be lamented. Many of the employed have no higher

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10/ Several studies have suggested that very substantial employment gains are possible. In the Vallée des Trois Rivières, as already noted, a potential reduction in the underemployment-equivalent rate from 78 percent to 23 percent has been claimed (Steverlynck 1976:57). Bulle and Da Cunha (1967) claim that irrigation of 5,500 hectares in the Plaine des Gonaïves would increase labor requirements from 508,900 work-days to 2,175,250.

11/ Sensibly, agro-industries are stressed in the Agricultural Plan (Haiti, DARNDR, 1976b:51-53), together with transportation and communications investments whose priority is determined mainly by agricultural programs. The suggestion that fertilizer plants be established, however, seems premature given the very low effective demand (Brummit and Culp 1973).

12/ It has been argued that 50,000 jobs could be created by opening up the Central Plateau. Curiously, a consulting group has proposed that agricultural production in that area be based on large farms and relatively capital-intensive technology (Haiti, DTPTC 1977: Vol. I, p. 82). The IDB is now considering a loan of about US$18 million for road construction and an integrated agricultural development project in the Central Plateau. The details of this project have not yet been completely defined.

incomes or levels of living than the unemployed; to reach both groups an emphasis on income (or a more comprehensive measure of well-being) is more appropriate.

Nevertheless, the lack of good data on rural employment and unemployment is disturbing. A large-scale attack on the soil erosion problem will require very substantial inputs of labor; but at present too little is known about what these labor requirements will be and at what times of the year labor will be available. The government will also have to decide how workers on erosion control projects are to be paid--in cash, in kind, or in a combination of the two--and from what sources of funding.

More research is badly needed on the employment implications of erosion control projects, not just during the construction stage but also for ongoing maintenance and repair work. Construction, maintenance, and repair of roads and irrigation systems also can provide a substantial number of jobs in rural areas. The ILO has estimated that erosion control, irrigation, and road projects together could create up to 100,000 jobs annually; assuming a 200-day work-year, labor costs (only) would be about $20 million. 13/ But benefits as well as costs need to be considered, and even if social benefits are defined liberally it could well be that many technically and financially feasible projects are inadvisable. 14/

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13/ Based on an estimated average agricultural wage of $0.40 per day.

14/ One of the dangers of a policy focusing on employment is that benefit-cost considerations can be ignored.

## H. GENERAL GOVERNMENT SUPPORT FOR AGRICULTURAL DEVELOPMENT

Little imagination has been exercised in the use of government policy to promote rural development, particularly for the great majority of farmers whose levels of living are very low. Moreover, budget allocations to the agricultural sector have been modest and have consisted overwhelmingly of salary payments. Salaries have been very low, making it difficult for the Ministry of Agriculture to retain qualified technicians. Periodic bursts of activity have occurred, but they have left few if any lasting improvements.

The latest burst of activity began, slowly at first, around 1970, when government interest in agriculture revived after having fallen to very low levels during most of the 1960s. The 5-Year Plan for 1971-76 gave agriculture second priority behind transportation and allocated to it 27 percent of the development budget (but far less than 27 percent of total government revenues). International development agencies began to show an interest in resuming or increasing their programs of assistance to the Haitian government. Implementation of the agricultural programs in the Plan, however, got off to a disappointing start when actual investment in the first year amounted only to about 25 percent of what had been planned. In fact, investment remained at about the same level as in the previous 4 years (USAID/Haiti 1974:59-62). Only at the end of the Plan period did the situation show signs of improving. 15/

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15/ Real spending trends in the development budget from 1971 through 1976 were as follows (from Table 1.21, with current-price data converted to constant prices by using the GDP deflator in Table 1.3):

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 |
|---|---|---|---|---|---|---|
| ¢ million: | 9.7 | 7.7 | 9.1 | 15.0 | 14.6 | 19.5 |

The Ministry of Agriculture has admitted that achievement of the Plan objectives for agriculture was less complete than for other sectors of the economy. This was attributed not only to relatively uncontrollable factors such as drought and inflation, but also to problems on which the government could have exercised some influence: the poor state of irrigation facilities and other infrastructure, weak institutions, poor data, price fluctuations, a low level of investment, and a lack of coordination and integration of socio-economic development actions (Haiti, DARNDR, 1976:1).

In a presidential address on 17 July 1975 agriculture was assigned first priority in the country's future development planning and was promised at least 20 percent of government development expenditures. The sector strategy in the 1976-81 Agricultural Plan calls for:

1. Improving socio-economic conditions in rural areas and slowing rural-urban migration.

2. Increasing production and productivity.

3. Promoting economic growth in rural areas and narrowing income disparities.

4. Upgrading human resources, providing more employment opportunities, and stimulating private-sector participation in rural development.

Progress toward meeting these objectives has been slow.

PART IV

SECTOR STRATEGY

CHAPTER 7

# OVERCOMING THE CONSTRAINTS TO AGRICULTURAL DEVELOPMENT

## A. INTRODUCTION

In recommending to USAID/Haiti a strategy and a series of programs for improving the welfare of the rural poor, consideration must be given not only to the constraints to agricultural development but also to the proposed activities of the Government of Haiti (GOH) and other donor agencies. This is necessary not only to avoid duplication of effort or program conflicts, but also to guard against overloading the GOH--and specifically DARNDR--with general and specific responsibilities which may be difficult to carry out effectively because of manpower, financial, and managerial shortages. 1/

This concluding chapter begins with a review of the constraints to agricultural development identified in Part III (Chapters 4-6). The interrelationships among these constraints will be discussed, and this writer will indicate how he views their relative importance. In moving toward a recommended strategy, the starting point will be an examination of the goals of DARNDR's agricultural development plan. We shall then look at current GOH, AID, and other donor programs, briefly relating these to the constraints facing agricultural development. Attention will then be turned to the future plans of other donor agencies, and to the very

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1/ As we noted in Ch.5.C.1, management assistance currently being provided to DARNDR under an AID-funded program seems insufficient in view of the projected expansion of foreign-donor activity in the next 3-4 years.

important issue of absorptive capacity. This will set the stage for a recommended strategy and series of programs to be considered by AID for FY 1978-1982, taking into account overall aid policies and available resources. In view of what appears to be a serious absorptive capacity problem during the next 4-5 years, the proposed strategy places a great deal of emphasis on training, institution building, and a strengthening of existing efforts. Finally, recommendations are made for a number of research efforts that will provide the GOH, AID, and other donor agencies better data for agricultural planning and programming.

## B. RELATIVE IMPORTANCE AND INTERRELATIONSHIPS OF CONSTRAINTS

### 1. Overview

Constraints to agricultural development cannot be viewed in isolation. All of them are interrelated, sometimes closely, and it is often difficult to determine what is cause and what is effect. This does not mean that an agricultural development strategy can attack any point in the complex web holding the constraints together, on the assumption that the impact of any one action will automatically set in motion forces that help overcome the other constraints. While some actions (e.g. price incentives) do elicit responses that might be considered nearly "automatic," others can cause new obstacles to appear or strengthen existing ones.

It is important, then, to consider carefully the direct and indirect effects of any single policy or program, and to recognize that agricultural development can best be promoted through strategies which give explicit attention to a number of interrelated problems. To take a simple example, programs designed to increase food grain production may lead only to lower prices and farm incomes (and ultimately to lower production) unless attention is paid to the marketing of the increased production, including the effects of competition from commercial and concessional imports. Consideration will have to be given not only to storage facilities, transportation, distribution channels, and the like, but also to the growth and distribution of income, which determines domestic demand for food grains.[2/] Small farmers, as both economic and anthropological research in the last 15 years has made clear, tend to make

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[2/] It should not be assumed, incidentally, that increased grain production will be consumed on the farm. Many farmers already produce marketable surpluses, and what they want is cash to purchase other food and non-food items.

rational decisions in matters affecting their own well-being.[3] If they know that the market outlook for, say, corn is not good, they may be quite rational in rejecting even excellent technical production advice from extension agents. If, on the other hand, the market outlook is good, farmers will recognize an opportunity to increase their incomes; but they will need to have access to production inputs, and perhaps credit as well, in order to take advantage of this opportunity. They may also require greater tenure security.

One could focus on any other policy or program and show how it cannot be undertaken in isolation. Extension advice, for example, may be wasted unless it is coupled with access to markets, credit, and technical assistance.[4] Agricultural planning is of little value unless attention is also paid to data collection, financial resources, and implementation. The list could be extended for several pages, but enough has been said to make the point.

Overcoming a series of interrelated constraints should not be attempted with "shotgun" approaches, scattering a load of pellets in the direction of a group of constraints and hoping that they are all hit. Rather, approaches to agricultural development need to have some focus--e.g. a crop, a watershed or other region, or a particular constraint the overcoming of which would have far-reaching benefits. There are no

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[3] To the extent that their behavior is "irrational" in terms of their own interests, the reason is usually the same as it is for irrational behavior in developed countries: incomplete or incorrect information.

[4] For an excellent critical review of the failure of narrow-focused U.S. extension assistance efforts in Latin America from the late 1940s to the early 1960s, see Rice (1974).

"magic keys" to agricultural development, and appropriate policies and programs will vary for each country in accordance with its resource endowments and its social, political, and economic structures.

The time has come to review the various constraints to agricultural development in Haiti and to provide some indication of their relative importance, at least as this writer sees them. The constraints reviewed in chapters 4-6 are brought together in Table 7.1, where each is assigned a number: "1" indicates that the constraint is of major importance, "2" indicates that it is moderately important, and "3" is used to designate a relatively minor constraint. [5/] This procedure may seem inappropriate in view of what has just been said about the dangers of looking at constraints in isolation; however, the rankings have been assigned with interrelationships in mind. These rankings do not imply that constraints should be tackled in order of importance. Clearly, higher returns can often be made by focusing first on "2-" or "3-level" constraints more amenable to resolution than some major constraints.

2. Farm-Level Constraints

The most important farm-level constraints seem to be lack of land tenure security, limited access to higher levels of production technology, and soil erosion. These are closely interrelated, as explained in Chapter 4.C. Soil erosion affects not only hillside farmers but also lowland farmers whose ability to use irrigation technology is limited by siltation of canals. Land tenure security is widely reported to be a serious constraint (see Chapter 4.A.1). Even farmers who now feel secure would lose much of this security if their land acquired greater value, as it would under a soil conservation program. Without tenure security, soil conservation projects will yield few long-run benefits, since farmers will

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5/ These are aggregate sector rankings. For specific crops, or sub-sectors (e.g. forestry or fishing), the ranking of constraints would often be quite different.

Table 7.1

Constraints to Agricultural Development in Haiti:
A Tentative Ranking

| Type of Constraint | Degree of Importance[a] |
|---|---|
| **Farm-Level Constraints** | |
| Access to Productive Resources | |
| Land and land tenure | 1 |
| Capital | 2 |
| Labor supply | 3 |
| Technology | 1 |
| Natural Constraints | |
| Natural disasters | 2 |
| Climate, soils, topography, water resources | 2 |
| Insects, diseases, rodents | 2 |
| Soil Erosion and Related Man-Made Constraints | 1 |
| **Support System Constraints** | |
| Supply-Demand Constraints | |
| Supply constraints | 1 |
| Demand constraints | 2 |
| Concessional food grain imports | 3 |
| Marketing Constraints | |
| Dispersed production | 3 |
| Lack of uniform weights and measures/grades and standards | 3 |
| Lack of storage facilities | 2 |
| Handling and transport costs | 1 |
| Lack of inventory financing | 3 |
| Lack of market information | 3 |
| Institutional Constraints | |
| Administrative/managerial/technical capacities | 1 |
| Cooperatives and other farmer organizations | 1 |
| Production credit | 2 |
| Input suppliers | 2 |
| Research | 1 |
| Extension | 2 |
| Other services | 2 |
| **National-Level (Policy) Constraints** | |
| Tax Policy | 2 |
| Monetary Policy | 3 |
| Price Policy | 2 |
| Credit Policy | 2 |
| Land Tenure and Land Redistribution Policies | 1 |
| Policies Affecting Rural Levels of Living and Income Distribution | 2 |
| Employment Policy | 3 |
| General Government Support for Agricultural Development | 1 |
| **Implementation Constraints** | |
| Bilateral and International Agency Procedures | * |
| GOH Procedures | * |

[a] 1 = major; 2 = moderate; 3 = minor.

* Regarded by the Haitian Ministry of Agriculture as significant constraints.

have little incentive to construct or maintain erosion control systems.

An institutional constraint related to the 3 farm-level constraints just reviewed is the weakness of cooperatives and other base-level organizations. As we saw in Chapter 4.C, the consensus among students of erosion control projects is that community organization is essential for the effective operation of such projects. Without the participation of all or nearly all farmers, terracing, reforestation, and other activities will not adequately protect a hillside, and adjacent lowland areas will continue to be affected by flash-flooding, siltation, and other erosion-related problems. Cooperation is also essential to ensure that erosion-control systems are properly maintained.

Natural constraints (natural disasters;climate, soils, topography, and water resources; and insects, diseases, and rodents) are classified as moderately important constraints. All countries must cope with these obstacles, and while they may restrict the types of agricultural development that can occur in a particular country, they do not always have a great effect on the overall rate of growth of sector output. Still, they can sometimes cause serious regional or seasonal problems. While some natural disasters are isolated events not affecting medium- or long-run agricultural decision-making, the droughts that have plagued Haiti's Northwest and its islands are of a recurrent nature. Thus they definitely restrict crop choice and discourage long-term investment. Groundwater resources in these regions seem limited, and salinity is a problem. The hilly topography and mediocre quality of many of the soils throughout the country are limiting factors, but other countries have adapted well to such limitations through judicious crop choices and soil conservation. Rodents cause serious damage to grain, and the boll weevil is a major problem in cotton production; but on the whole the insect-disease-rodent

problem is not a major one.

Access to capital is also classified as a moderately important constraint. Given relative factor prices and the unfavorable ratio of farm residents to arable land, capital-intensive technologies make little sense in Haiti. Nevertheless, certain kinds of capital formation can play an important role in overcoming constraints to agricultural development. Terrace construction and reforestation have already been mentioned in connection with erosion control programs. There is also considerable potential for increasing production through the rehabilitation of existing irrigation systems or construction of new ones; but as Ewel (1977) has pointed out such projects may prove to be unproductive investments unless steps are taken simultaneously to control siltation-causing erosion on nearby hillsides. 6/ Again, it is worthwhile repeating that these types of investments are unlikely to be productive without greater cooperation among small farmers. In some cases, cooperation might also make feasible the purchase of tractors and other equipment, which under certain circumstances can actually increase the demand for labor, the relatively abundant factor of production.

This brings us to a brief consideration of farmer access to labor. As we saw in Chapter 4.A.3, access to farm labor is not a serious constraint, though seasonal shortages are reported for some areas and farmers sometimes complain about the low productivity of hired workers and/or neighbors working under exchange-labor arrangements.

3. Support System Constraints

Support system constraints have been classified into 3 categories: supply-demand constraints, marketing constraints, and institutional constraints. Among the supply-demand constraints, this writer considers

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6/ DARNDR now requires that irrigation projects be tied to overall watershed management.

the supply constraint to be the most serious. Continued soil erosion lowers the productivity of the land and makes production increases more and more dependent on increased use of purchased inputs and improvements in farm technology. The supply response of export crops to price increases does not seem to be very elastic.

Demand constraints, while less serious, are still of some importance. Most Haitian farm output is marketed, and while the Port-au-Prince market is growing rapidly in terms of both numbers and average purchasing power, the situation is very different in rural areas. Per capita incomes there have probably been falling, and the prospects for a significant expansion of non-agricultural activity are not very bright, except perhaps for food processing in some areas. This limits the effective demand for food products, and means that significantly increased production in the short run will depress food prices, lower farm incomes, and discourage productivity increases. If we add foreign demand to domestic demand the picture improves. World demand for coffee is not likely to be growing very rapidly over the long run, but there is considerable scope for increased exports from Haiti since the country consistently has failed to meet its export quotas. Moreover, foreign exchange earnings can also be increased through quality improvements. The picture for other export crops is mixed (see Chapter 5.A.2).

At present, we consider concessional food grain imports to be only a minor obstacle to agricultural development. However, if rice and corn imports are resumed (except in small amounts and with careful planning) this could act as a strong disincentive to domestic food grain producers.

Among the marketing constraints, the principal problem, in our view, is the lack of good transport facilities. Improved transport will lower

prices to consumers and increase them for many (but not all) farmers. Another significant benefit will be the lower cost of farm inputs, and this should provide an incentive for the expansion of the input supply network, the near-absence of which we regard as a moderately important institutional constraint. Improved transport also makes it easier for extension agents and other field workers to reach farmers. A potential problem related to transport improvements is that road construction, by raising land values, may increase land tenure insecurity. Experience with current road projects should be reviewed before significant new road construction is undertaken. Investment in transport should include not only road construction and rehabilitation but also improvements in coastal shipping. A moderately important marketing constraint is the lack of storage facilities, particularly for food grains. This writer regards the other marketing constraints--dispersed production and the lack of weights and measures, grades and standards, inventory financing, and market information--as being of relatively minor importance.

Insitutional constraints, in our view, are all of major or at least moderate importance. Identified as major constraints are administrative, managerial, and technical limitations; the lack of cooperatives and other farmer associations; and the lack of adaptive research capabilities. 7/ We consider other institutional shortcomings--in the fields of production credit, input supply, extension, and other services--to be moderately important constraints.

Haiti's limited numbers of well-trained and effective administrators, managers, and technicians already are under considerable pressure because

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7/ In addition to the long-run benefits from adaptive research, short- and medium-run benefits are possible from variety trials and other relatively simple research efforts.

of the rapid increase in the number of agricultural development programs initiated with foreign donor assistance in the last few years. While many of DARNDR's high-level employees are working less than an 8-hour day, their abysmally low salaries make it difficult for them to avoid having another job, or perhaps several others. When the demands placed on them by DARNDR increase, their productivity is likely to fall. The alternative, delegating responsibilities to less experienced staff, is also likely to have adverse productivity consequences. Project management will suffer under these circumstances, and accomplishments may fall far short of goals. As we shall demonstrate below, DARNDR is confronted with a serious absorptive capacity problem, both in terms of skilled manpower and financial resources, and it has serious administrative and managerial shortcomings as well.

In addition to general administrative and managerial problems, it is useful to single out as an important constraint the government's role in discouraging production through its direct and indirect support of monopsony power. This is most obvious in the cases of cocoa, cotton, meat, and sugar, but it may also be a factor in the marketing of coffee and some other crops.

The importance of farmer organizations has already been mentioned in connection with erosion control projects. Base-level organizations are also important for reducing the very high cost of providing production credit to small farmers, and the Sociétés Agricoles de Crédit (SACs) have been a promising step in this direction. In some cases, cooperative or communal farming would achieve economies of scale under existing technologies. While the difficulties of forming permanent farmer organizations in Haiti should not be underestimated, it seems clear that the absence of such organizations will seriously constrain development possibilities.

The importance of agricultural research has been emphasized by Evenson and Kislev (1975), Hayami and Ruttan (1971), and others. Haiti may still be a long way from the point where adaptive research will make an important contribution to current production, though some gains can be made relatively quickly through variety trials and similar efforts. Given the long time frame that research requires, and the urgent need for more efficient multiple-cropping schemes and other new technologies to increase yields and offset the effects of soil erosion, research deserves high priority at this time. It is important that research in Haiti be based on farm conditions faced by the small farmer. Much of it should be conducted on small, hillside plots and should employ a variety of multiple-cropping schemes. There is also a place for mono-crop research on flat lands (e.g., for rice), but this may be of little benefit to most of Haiti's small farmers.

The viability of various farm-level technologies will depend in large part on their information intensity. Other things equal, the productivity differential of a new technology will have to be greater the higher are the costs of ensuring adoption. This suggests that research efforts should investigate several alternative technologies, including those whose information intensity is relatively low. There is also a need for research on factors affecting farmer decision-making regarding agricultural inputs.

The moderate ranking assigned to extension as a development constraint may be puzzling in view of what we have said about its importance for soil conservation efforts, as well as the emphasis we have placed on the need for new technologies. The point we would like to make here is that it is the extension <u>services</u> that are important,

not the extension organization or institution (cf. Rice 1974). Extension services can be provided by credit agencies, area development programs, community development groups, input suppliers, and other institutions. Indeed, they tend to be more effective when they are closely tied to other services--i.e. when the extentionist can not only show a farmer what to do but take him where he needs to go to obtain credit, purchase inputs, market his product, etc. (Rice 1974). This is the approach we would recommend for Haiti. There is still a need to strengthen the extension organization within DARNDR, but the resources devoted to such an effort should be relatively modest. Moreover, the emphasis should be on quality of services, not on the quantity of extensionists. 8/

Among other institutions serving agriculture, community development organizations can play an important role in helping farmers build the permanent, community-level organizations needed for erosion-control projects, efficient management of irrigation systems, and securing significant amounts of credit for both current inputs and long-term investments. To be more effective, these organizations will need closer links with other agricultural institutions than many of them have had in the past. Institutions providing agricultural education need to be strengthened to increase the supply of trained agronomists and agricultural technicians.

Some readers may be surprised not to find credit listed as a major constraint. However, recent research (summarized in Lipton 1976) suggests that the lack of institutional credit is not as serious a

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8/ Some USAID/Haiti officials consider the lack of an effective extension organization in DARNDR to be a major constraint. While this writer disagrees, he does believe that this is a constraint that might be overcome more easily than many others.

constraint to agricultural development as most observers have assumed. Farmers who lack access to institutional credit will borrow funds in the non-institutional market, not just to finance basic consumption needs and to pay debts but also to purchase production inputs. When market conditions encourage increased agricultural production, farmers will reallocate resources borrowed in the non-institutional market, spending more on production inputs and less on consumption goods. Moreover, there is a growing body of evidence that many small farmers, even in very poor countries (including, as we have seen, Haiti), have savings--often held in the form of livestock or land--which can be utilized to take advantage of attractive market situations. One should be cautious, however, in accepting the "new consensus" regarding the importance of credit, for it seems applicable mainly to situations where farmers have an opportunity to increase their incomes by switching crops or making relatively modest technological changes. Where radical new technologies are required, e.g. with the use of high-yielding grain varieties, institutional credit is needed even by relatively affluent farmers, and other institutions must also be able to provide effective services.

In Haiti, the scope for introducing sophisticated new technologies is limited. Both DARNDR and the vast majority of farmers currently lack the managerial and technical capabilities to make such a strategy a promising one, and the emphasis should instead be on less sophisticated technological packages. Accordingly, we may reasonably conclude that the new consensus regarding credit is applicable in the Haitian case--i.e. lack of credit should <u>not</u> be regarded as one of the major constraints to agricultural development over the next 5 years or so. Rather than

flood BCA and IDAI with dollars they will find difficult to absorb, an appropriate credit strategy at this time calls for institutional strengthening via technical assistance, together with a serious examination of the pros and cons of combining IDAI and BCA into a single institution that would be better able to assume development banking functions which help farmers adopt more productive technologies. Again, the emphasis should be on the quality of assistance provided to farmers, not on the size of the staff providing the assistance. Experience in other countries suggests that poorly supervised credit can be worse than no assistance at all.

Related to the credit constraint, and in a sense more serious than the lack of institutional credit per se, is the lack of an effective institutional network for distributing chemical and biological inputs. While farmers would certainly benefit from non-institutional credit from input suppliers, some would be willing and able to make cash purchases if only inputs were available at reasonable cost and in timely fashion. Given the limited demand for purchased inputs in many local market areas, relatively few private suppliers are likely to open offices in small towns and cities unless their operations are subsidized or improved transportation increases a town's service area and lowers the cost of inputs to farmers, thus increasing the quantity demanded. Alternatively, the government could expand its own role as an input supplier--e.g., through local BCA and IDAI offices, in order to help strengthen these institutions.

However this institutional constraint is attacked, care will have to be taken, as Roe (1978:128-129) points out--and as experience with the AID-financed coffee program underscores--to ensure that the inputs

provided are (1) sufficient in quantity at the time and place needed; (2) not information-intensive and thus easily adopted by farmers whose prior experience is confined to traditional inputs; (3) made available in such a way as to build confidence and minimize risk (e.g., beginning with small quantities applied to only part of a farmer's holdings); and (4) flexibly packaged to accomodate individual farmers' capabilities, factor endowments, and risk preferences. The unit costs of administering such a system would be high initially, but as adoption of modern inputs increases over time these costs would fall.

4. National-Level (Policy) Constraints

The agricultural sector assessment prepared for USAID/Haiti in 1974 (LeBeau 1974:i) argued that:

> The greatest single constraint to an effective attack on these problems is the evident lack of concern for the rural population on the part of the urban elite and certain elements of the responsible ministries. . . .
>
> . . . Because of institutional limitations at the central government level, . . . great reliance should be placed on local leadership and only limited demands placed on central government ministries.

While there have been some definite improvements since then, it is our view that government support for agricultural development is still weak and continues to constitute a major constraint. The number of employees in DARNDR has increased, but DARNDR's operational budget has declined in real terms and its share of the total operational budget has fallen from 8.2 percent in 1970 to 5.9 percent in 1976 and probably less than 5 percent in 1977. The average real salary in DARNDR fell by 48 percent between 1970 and 1977 (see Table 1.21), making it difficult to attract and retain qualified technicians. The development budget, it is true, has increased very rapidly in real terms, but this has

occurred mainly through external financing. Moreover, agriculture's share of the development budget, too, has been declining (see Table 1.21). The government's commitment of its own resources remains weak.

The other major policy constraint we have identified is the absence of a clear policy on land tenure and land redistribution. As explained above, tenure security is a prerequisite for effective erosion-control projects, and it is important also for stimulating other types of long-term, on-farm investments. Finally, peasants whose land values rise (e.g. because of road construction or irrigation projects) should have greater security that their ownership rights are respected. The GOH has indicated that it will continue its efforts to legally validate land ownership rights, but progress in this area has been quite slow.

Moderately important constraints to agricultural development are tax policy, price policy, credit policy, and policies affecting rural levels of income and income distribution. Export taxes have acted as a disincentive to coffee and sugar exports (see Chapter 6.A). Price policies affecting sugar and cotton have also discouraged production. Higher cotton prices paid by the cotton yarn factory, a subsidiary of IDAI, would benefit several thousand small producers; but such a step would aggravate the enterprise's already large deficit unless coupled with production and marketing reforms (see Chapter 6.C).

While tax policy and price policy are considered only moderate constraints to agricultural development, they are constraints that can be overcome with small real resource costs to both foreign donors and Haiti. There is thus a strong case for attaching high priority to reforms in these areas. 9/ However, such reforms, though having low

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9/ Price policy does not refer only to the use of price-control or price-subsidy schemes. In some cases an appropriate price policy would call for market-determined agricultural prices.

costs to the Haitian economy as a whole, imply a significant redistribution of resources to farmers at the expense of the national treasury and of relatively affluent private groups such as exporters and processors. Since the latter groups wield more power than small farmers, policy changes in these areas will be strongly resisted. But these reforms would be very effective means of achieving the government's stated goal of narrowing income inequalities (see Chapter 7.C below).

Credit policy has received more attention in the 1970s than in the 1960s. The BCA has taken some important steps toward group lending to small farmers, and the new IDB loan to IDAI incorporates some important credit reforms. Still, the co-existence of 2 small agricultural credit agencies, with substantial duplication of administrative overhead, means that the cost of providing credit to small farmers is very high. Consideration should be given to establishing a single agricultural credit agency, through a merger of BCA and IDAI (or at least IDAI's agricultural lending program) or perhaps by creating an entirely new organization. This credit agency should move more quickly toward becoming a true development banking institution, but this will still be a long-term process.

Finally, among the moderately important constraints, brief mention may be made of policies affecting rural levels of living and income distribution. Raising levels of living and making income distribution more equitable are important not only for their own sake but also because they increase the demand for food and thus stimulate farm production. Historical experience in both developed and developing countries suggests that there is little likelihood that income distribution will be significantly affected unless a combination of fairly

radical measures are undertaken and particular emphasis is given to rural areas (Adelman, Morris, and Robinson 1976). This kind of approach has not been adopted in Haiti. While some increased investments are being made in rural road construction, area development programs, health, and education, the effects on rural levels of living are likely to continue being modest given present resource allocations and absorptive capacity constraints. If the impact of public policies on rural living standards is to be significantly greater, there will have to be both a reallocation of domestic resources from the private to the public sector and a reallocation of resources within the public sector from urban to rural areas. Reforms in tax and price policy would have to be important components of such a strategy, which would also have to include sharply higher spending on rural health and education. There is little evidence that such steps are being contemplated.

Two constraints which are of relatively minor importance are monetary policy and employment policy. Given the rudimentary state of financial institutions in Haiti, monetary policy currently has little direct or indirect effect on agricultural development (see Chapter 6.B). Employment policy is given a low ranking not because there is no significant unemployment/underemployment problem--there is--but rather because a more appropriate focus of policy is income, or a more comprehensive measure of well-being (see Chapter 6.G).

5. Implementation Constraints

DARNDR officials have expressed concern about the time-consuming procedures associated with the disbursement of funds and the implementation of projects financed by AID and other donor agencies. Apart from the fact that these procedures can be very demanding on DARNDR's scarce

administrative/managerial resources, the resulting delays in implementation sometimes have serious adverse effects on the projects or programs for which assistance is being provided. This writer is sympathetic to these concerns but is not too optimistic about the prospects for significant changes in disbursement/implementation procedures.

Apparently of equal concern to DARNDR officials are the cumbersome bureaucratic procedures employed by CONADEP, particularly for the release of GOH counterpart funds generated by PL 480 programs. While CONADEP has a legitimate role to play in coordinating foreign assistance and ensuring compliance with national development objectives, it would appear that its interests can be adequately protected with simpler and less time-consuming documentation. However, complicated internal disbursement procedures are in part caused by foreign donor requirements.

## C. THE GOALS OF THE 1976-1981 AGRICULTURAL DEVELOPMENT PLAN

The "basic strategy" of Haiti's second agricultural development plan (Haiti, DARNDR, 1976b) calls for (1) improving socio-economic conditions in rural areas to reduce rural-urban migration; (2) undertaking investments and other programs to increase production and productivity; (3) promoting economic growth in rural areas and narrowing income inequalities; and (4) developing human resources, creating jobs, and stimulating private sector participation in development (p. 3). It is difficult to find fault with this strategy statement, which is very compatible with AID's policy mandate to concentrate its resources on the rural poor. Developing policies and programs consistent with this strategy, however, is another matter, and in this regard the sector plan has some serious shortcomings.

The plan document is more appropriately characterized as a description of activities and an expression of hopes rather than a complete plan. Much of the analysis is very general, and the relatively few statistics are not always up-to-date.[10/] The policy section is vague, and budgets for specific projects are not specified (though this information is provided in several annual documents).[11/] The overall funding level--even taking foreign assistance into account--is too ambitious in view of the financial constraints under which DARNDR has been operating. There is no close connection between goals and objectives, on the one hand, and specific projects, on the other. Nor is there an adequate discussion of the constraints which specific projects are designed to overcome. Finally, the plan is not always consistent with CONADEP's overall development plan for the same period.

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10/ It should be pointed out that Haitian planners are severely handicapped by the lack of reliable data on many key variables (see Haiti, DARNDR, 1976b).

11/ For more details on specific projects and activities see DARNDR's annual review for fiscal year 1975/76 (Haiti, DARNDR, 1976a) and the recently-completed review for 1976/77. Considerable detail is also provided in the government's annual Development Budget.

The agricultural development plan (p. 3) establishes a target sector growth rate of 2.0-5.0 percent, [12] compared with a rate of 1.0 percent achieved during 1971-76 (see Table 1.8). Given the constraints identified above, the upper target growth rate is too ambitious, notwithstanding the substantial amounts of foreign assistance that Haiti has received in the last few years and can expect during the rest of the plan period. The lower target, though, is quite feasible.

Other quantitative targets are established for crop and livestock production, yields, exports, imports, and employment. The production targets (p. 63) are based on an objective of raising annual per capita food consumption from an average of 425 kg. during the 1972-74 base period to 600 kg, the minimum standard recommended by FAO, in 1981. This may be a laudable long-term objective, [13] and it is technically feasible; but medium-term plan targets should be based on what is administratively feasible given projected resource availabilities, domestic and foreign, during the plan period. To achieve the consumption objective established, output of crop production (in metric tons) would have to be 57 percent higher than the base period, and livestock production 54 percent higher. [14] The annual growth rates implied are 5.8 and 5.6 percent, respectively. The crop production target is especially unrealistic since it is expected to be achieved with a 2 percent decline in area cultivated and a 61 percent increase (!) in yields. This writer is unaware of any historical case, in any developing country, in which aggregate crop yield increases approaching 6.1 percent annually have been sustained over an 8-year period.

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[12] Elsewhere in the plan document the planned rate of growth of agricultural and livestock production (in metric tons) is said to be 11.4 percent (p. 63). This figure, however, is not correctly calculated; the underlying data actually yield a growth rate of about 5.8 percent.

[13] Though one based on calorie and/or protein consumption would be more appropriate.

[14] It is not clear what assumptions are being made about changes in the composition of crop or livestock production.

The foreign trade targets are puzzling. For exports (p. 65) they are as follows (in thousands of metric tons):

| | 1972 | 1977 | 1981 |
|---|---|---|---|
| Coffee | 29.4 | 29.4 | 29.4 |
| Cocoa | 0.7 | 1.5 | 2.3 |
| Sugar | 15.0 | 20.0 | 27.0 |
| Other crops | 1.3 | 2.4 | 4.1 |
| Meat | 1.4 | 1.7 | 3.0 |
| Total | 47.8 | 55.0 | 65.8 |

Coffee export volume is projected to be constant over the plan period at a 1972 level that is much higher than the figure in Table 1.9 , despite the fact that the GOH is committing substantial resources, with AID assistance, to increasing coffee production. Exports of sugar, for which GOH involvement is largely restricted to tax and price disincentives, are curiously expected to be 80 percent higher in 1981 than in 1972. A very high percentage increase is projected for cocoa, the production of which is discouraged by monopsony. High percentage increases are also projected for other crops and for meat.

Imports of wheat are expected to grow rapidly, but sharp declines are expected for imports of other agricultural products and meat:

| | 1972 | 1977 | 1981 |
|---|---|---|---|
| Wheat | 27.0 | 31.7 | 44.9 |
| Other agricultural products | 28.0 | 23.0 | 4.5 |
| Meat | 5.4 | 5.4 | 1.5 |
| Total | 60.4 | 60.1 | 50.9 |

The extent of import substitution implied by the data for non-wheat imports is greater that what reasonably can be expected.

The employment target calls for a decrease in the rural unemployment-equivalent estimate from 78 percent to 63 percent by the end of the plan period (p. 66). This implies an annual rate of increase of 10 percent in full-time-equivalent employment. The extent of underemployment, as we have demonstrated elsewhere (Chapter 3.F) is grossly exaggerated, though a serious problem definitely exists. A 10 percent

annual increase in rural employment not only is unrealistically high but also implies a decline in labor productivity per hectare unless a large share of the additional employment is to be absorbed by rural public works projects. (The latter are clearly contemplated, but the distribution of additional employment between agricultural and non-agricultural activities is not indicated).

## D. CURRENT PROGRAMS TO OVERCOME CONSTRAINTS

### 1. Government of Haiti

The agricultural sector plan (pp. 67-76) lists 4 general means for attaining plan objectives. These are:

a. Public investments, totalling ₵430 million (US$86 million) during the plan period [15/]

b. Strengthening the institutional structure, by reducing the amount of duplication, increasing DARNDR's authority, improving coordination of agricultural sector activities (through DARNDR), and facilitating decision-making

c. Indirect actions to stimulate the private sector, including the publication of "legal norms governing land and water utilization, rural associations, investments, marketing of agricultural products, credit, technical assistance, international cooperation, project formulation, etc." (p. 74)

d. Training of technicians--236 at the university level and 2,360 mid-level specialists--to work in the countryside, largely with groups of farmers

The specific means for achieving the objectives of the plan are identified as follows (pp. 76-97):

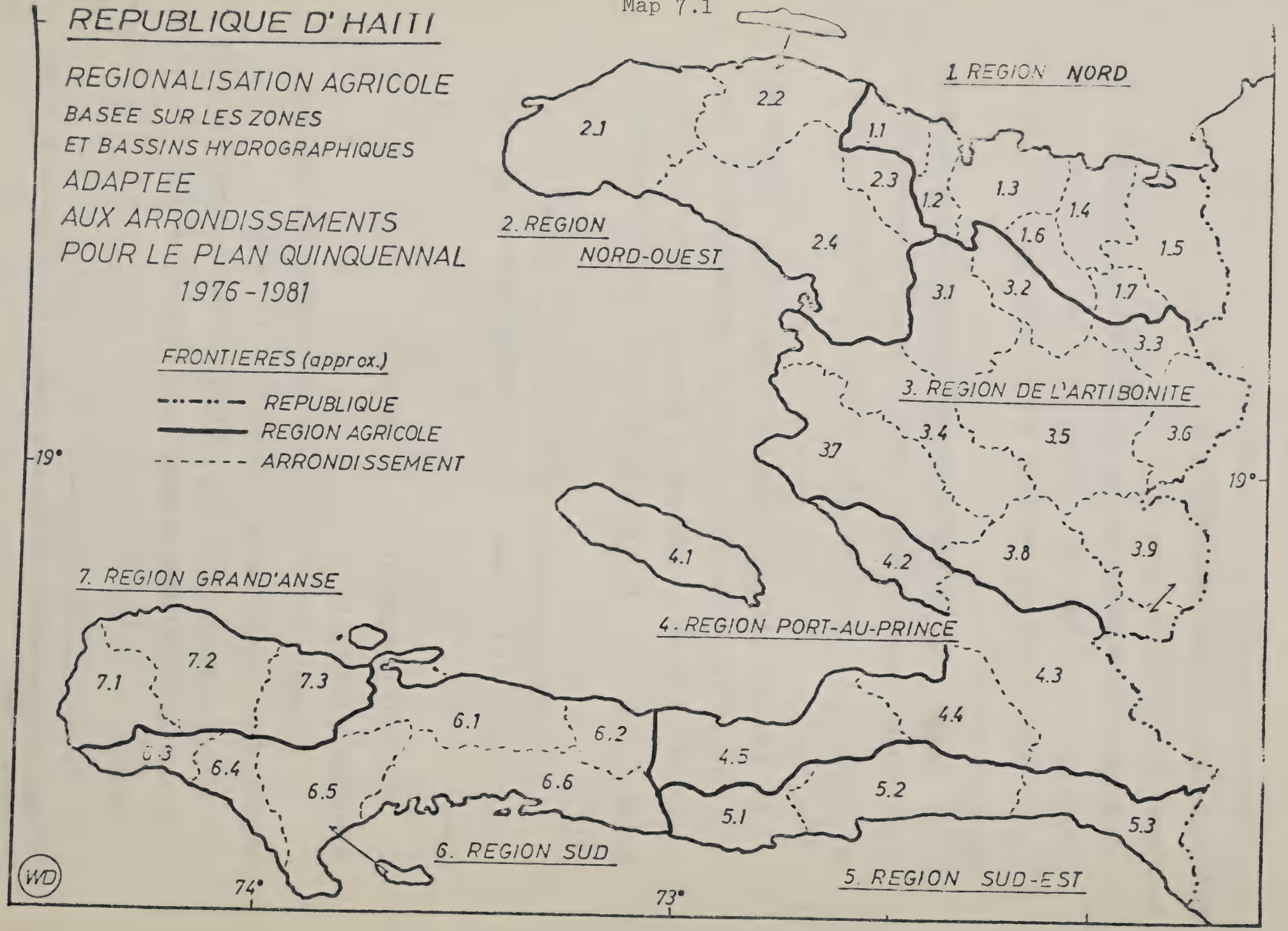
a. Regionalization, i.e. division of the country into 7 planning regions, based largely on major watershed areas (see Map 7.1)

b. Establishment of "Ilots de Développement," mini-growth poles around which integrated development programs are to be built (serving 5,000 hectares by 1981)

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15/ Some of these expenditures are more appropriately classified as current expenditures.

Map 7.1




Source: Haiti, DARNDR (1976b:Between pp. 78 and 79).

Key to Arrondissements[a] Identified in Map 7.1

1. Région Nord
   - 1.1 Borgne
   - 1.2 Limbé
   - 1.3 Cap-Haitien
   - 1.4 Trou du Nord
   - 1.5 Fort Liberté
   - 1.6 Grande Rivière du Nord (qui draine vers le Nord)
   - 1.7 Vallières (qui draine vers le Nord)

2. Région Nord-Ouest
   - 2.1 Môle St-Nicolas
   - 2.2 Port-de-Paix (et l'Ile la Tortue)
   - 2.3 Plaisance
   - 2.4 Gonaives

3. Région de l'Artibonite
   - 3.1 Marmelade
   - 3.2 Grande Rivière du Nord (qui draine vers le sud)
   - 3.3 Vallières (qui draine vers le sud)
   - 3.4 Dessalines
   - 3.5 Hinche
   - 3.6 Cerca La Source
   - 3.7 St-Marc
   - 3.8 Mirebalais
   - 3.9 Lascahobas (et Commune Cornillon)

4. Région Port-au-Prince
   - 4.1 Ile La Gonâve
   - 4.2 Arcahaie
   - 4.3 Croix des Bouquets (sans Commune Cornillon)
   - 4.4 Port-au-Prince
   - 4.5 Léogane

5. Région Sud-Est
   - 5.1 Bainet
   - 5.2 Jacmel
   - 5.3 Belle-Anse

6. Région Sud
   - 6.1 Nippes (Anse à Veau)
   - 6.2 Miragoâne
   - 6.3 Tiburon
   - 6.4 Côteaux
   - 6.5 Les Cayes (et Ile à Vache)
   - 6.6 Aquin

7. Région Grand'Anse
   - 7.1 Anse d'Hainault
   - 7.2 Jérémie
   - 7.3 Corail

[a]Based on the territorial reorganization of 1976.

c. Provision of agricultural services, including (1) research, (2) extension, (3) credit, (4) agricultural inputs, and (5) infrastructure

d. A new Service National de Commercialisation (SENACA), to formulate and implement a national marketing policy, collect and disseminate information, and engage in research and training activities

e. Peasant organization, i.e. the formation of cooperatives, pre-cooperatives, and other associations

The plan goes on to identify 19 program categories (see Table 7.2), which in turn are divided into 49 sub-programs and 231 specific projects of various sizes (listed on pp. 142-154 of the plan document). Cost estimates for specific projects are not provided, and it is difficult to determine which were under way when the plan was prepared, which were not but had assured funding (internal or external), and which were in various stages of planning or negotiation. Where appropriate, external funding agencies are identified for each specific project, but it is sometimes difficult to separate actual from potential donor agencies.

An evaluation of each program or sub-program--let alone all 231 projects--is beyond the scope of this study. Our comments, then will be limited to a relatively few observations which are of particular interest in the light of the constraints analysis presented above.

a. The authors of the planning document state that "the cooperative solution as a means for developing our agriculture appears each day as an imperative, given the growth of demographic pressures and the subdivision of landholdings" (pp. 117). This statement is strongly supported by the constraints analysis presented above. The objectives of the cooperative program are, (1) in the long run, to convert agricultural communities into production cooperatives (with an unspecified structure) and (2) to show

Table 7.2

Projected Expenditures under the 1976-1981 Development Plan

(millions of gourdes)

| Program Number and Title | | Current Expenditures | Investment Amount | Investment Percent |
|---|---|---|---|---|
| 1 | Basic foods | 12.0[a] | - | - |
| 2 | Industrial raw materials;exports | | - | - |
| 3 | Research | 5.2 | 20.0 | 4.6 |
| 4 | Extension | 16.8 | 20.0 | 4.6 |
| 5 | Livestock | 4.3 | 25.0 | 5.8 |
| 6 | Rural cooperative organizations | 2.2 | 1.0 | 0.2 |
| 7 | Agricultural credit and savings | 2.2 | 100.0 | 23.3 |
| 8 | Marketing | 1.9 | 20.0 | 4.6 |
| 9 | Water resources | 3.0 | 10.0 | 2.3 |
| 10 | Soils | 12.1 | 26.0 | 6.0 |
| 11 | Forestry | | | |
| 12 | Fauna | | | |
| 13 | Fisheries | 3.0 | 10.0 | 2.3 |
| 14 | Education | 14.2 | 15.0 | 3.5 |
| 15 | Staff training | - | 18.0 | 4.2 |
| 16 | Rural development[b] | 8.8 | 150.0 | 34.9 |
| 17 | Agricultural planning; programming | 2.7 | 15.0 | 3.5 |
| 18 | Institutional improvements | | - | - |
| 19 | Sector coordination | | - | - |
| | Total | 88.5 | 430.0 | 100.0 |

Source: Haiti, DARNDR (1976b:71, 99-141).

[a]Expenditures allocated to "general administration" in a slightly different listing of programs (p. 108).

[b]Primarily for irrigation, other infrastructure, and agro-industries.

rural residents how they can solve their own problems. Since cooperative traditions are lacking, it is said, the government must play an important role in the early stages of this process (pp. 96-97). The funds programmed for base-level organizations, however, are quite modest (see Table 7.2). While some of this work may also be carried out under other program headings, or by other ministries, on the whole it does not appear that the level of planned activity matches the importance attached to it in the quotation above.

b. The emphasis on area development programs (DRIPP, ODVA, ODN, the "Ilots" project, etc.) also is supported by our analysis, which emphasizes the need to identify interrelationships among constraints and to treat them as a group. Decentralization is a major aspect of Haiti's overall development plan, and DARNDR's area development programs, as well as its division of the country into 7 agricultural planning regions (a scheme not yet implemented), fit into this strategy.

c. The resources tentatively allocated to reforestation and other erosion control measures are significantly lower than what our constraints analysis suggests would be important. Table 7.2 shows that ₵26.0 million (US$5.2 million) or only 6 percent of planned investment expenditures are allocated to programs of this nature. 16/

d. A large but difficult-to-determine proportion of expenditures under "Rural Development" (Line 16), which accounts for 35 percent of planned investment, is for construction or rehabilitation of irrigation and drainage systems. To the extent that these projects are not combined with soil conservation efforts on nearby hillsides, siltation may occur, with unfavorable effects on the rate of return of these investments.

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16/ Actually, the amount is somewhat smaller, since some of the projects under Programs 10-12 are for other purposes.

e. There are references to land tenure security in the plan, but they are vague and this issue does not receive the very high-priority attention it merits in the light of our constraints analysis.

f. Price policy is identified as a major instrument for increasing farm production and incomes (p. iii), and it is stated that it will be used for this purpose--e.g. through the establishment of minimum prices based on production costs of the most efficient farmers in each region (pp. 52,57). The GOH has discussed a program of this nature with the FAO. A good case can be made for establishing minimum prices for a few selected crops, but even a limited program may not be able to operate efficiently at this time given Haiti's limited pool of administrative and managerial skills.

2. AID

AID is now providing the following assistance to Haitian agriculture:

a. Since 1966, the U.S. has supported the Haitian American Community Help Organization (HACHO), which has been providing both financial and technical assistance to rural communities in the Northwest in the fields of health, potable water, irrigation, road improvement, community development, and agriculture. The present AID program, initiated in 1976 with AID funding of US$3.5 million, ends in 1978, when it is likely to be reoriented and its activities concentrated in fewer fields, although perhaps on a larger scale.

b. A Small Farmer Development project aims at raising the production and incomes of small coffee farmers through credit for fertilizers, a modest amount of road construction, and the construction of coffee centers. The termination date of this project, for which AID is contributing US$7.5 million, is 1980.

c. An Integrated Agricultural Development project is currently AID's most important activity for providing assistance under the 1976-81 agricultural

sector plan. The project is geographically concentrated in the Plaine des Cayes, Jacmel, Thomazeau, and the Northwest. AID funds totalling US$12.1 million will be used for irrigation, soil conservation, extension, and agricultural credit. In addition, the project contains an institution-building component in the form of a 4-man management team assigned to DARNDR. Finally, it provides assistance for the creation of a fifth-year specialized program in rural engineering in the FAMV. The project was approved in 1977 and is expected to last 5 years.

d. A Small Farmer Marketing program, initially funded with a grant of US$750,000, is about to be implemented. This program is closely tied to the coffee production program described above, and anticipates the formation or strengthening of marketing cooperatives.

e. Agricultural Feeder Roads are being constructed under a program for which AID is contributing US$2.4 million.

In addition to the above, PL-480 Title I sales have generated local currency which the GOH has used to support programs in agriculture and other sectors of the economy. Particular attention has been given to rehabilitation of small irrigation systems and to institutional strengthening.

3. Other Donor Programs

The Inter-American Development Bank (IDB) recently approved a loan of US$6.1 million to IDAI for agricultural and industrial credit. As described in Chapter 5.C.3, this loan seeks to make some fundamental changes in what has been a very weak agricultural credit program. It is also financing an integrated rural development program in the Artibonite. This program includes reconstruction of irrigation and drainage canals, soil conservation, extension, credit, and a cadastral survey of 40,000 hectares.

The Canadian International Development Agency (CIDA) has been financing, since 1975, an integrated agricultural development project centered around Petit-Goâve and an agricultural education program at the FAMV and the Ecole Moyenne d'Agriculture. It has also been providing technical assistance to the new marketing agency (SENACA) and to the new Programming Unit in DARNDR, which already has produced some 2 dozen studies and other documents of considerable interest. The Petit Goave project has a total cost of about US$16 million.

The World Bank approved a loan of US$8.4 million in 1976 to help finance the first phase of a regional development program in the North. This first phase, which is expected to be completed in 1981, includes construction of feeder roads, extension and animal health services, and the provision of credit (coordinated with the BCA).

The French government recently completed a paved highway from Port-au-Prince to Jacmel. It has also provided assistance to the National Seed Center and has taken aerial photos which are now being used to make 1:40,000 maps.[17/] One agronomist is stationed in Jacmel (though new programs are anticipated for this area) and 3 are working on the World Bank-financed project in the North.

The FAO provided approximately US$11 million in technical assistance to Haiti's agricultural sector during the period 1972-76. It is currently financing a large-scale, 5-year extension assistance project beginning this year. A total of US$3.0 million will be made available for expatriate salaries, equipment and supplies, and salary supplements to counterpart

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17/ AID plans to use these maps (blown up to a scale of 1:10,000) as the basis for constructing an area frame to obtain agricultural statistics by sample survey.

personnel. An erosion-control project in the Les Cayes region was recently completed,[18] as was the first phase of a similar project in the Limbé area in the North.

The Instituto Interamericano de Ciencias Agricolas(IICA) has provided technical assistance to a number of DARNDR's programs, including the Ilots project, the establishment of SENACA, the Planning Unit, and a seed improvement program. It has also conducted studies of various agricultural sector problems and has provided training in project preparation and evaluation.

The Organization of American States (OAS), together with Israel and several other governments, has provided technical assistance for the establishment of agricultural cooperatives near Bas Boën in the Cul-de-Sac. The OAS contribution, now US$70,000 a year, will terminate in 1979. A modest US$40,000 is being spent on research on the recuperation of alkaline soils in the Cul-de-Sac.

The Federal Republic of Germany is sponsoring the construction of 30 irrigation wells in the Plaine des Gonaives. The project also includes assistance in agricultural planning, a pilot cadastral survey, and a program of well maintenance in the Cul-de-Sac and the Artibonite Valley. Four experts are now assigned to the project, and it is expected that about US$4 million will be spent between 1977 and 1981. In addition, the FRG contributes about US$400,000 annually in food and technical assistance for the HACHO project. Finally 3 technicians are being provided to work with the World Bank project in the North.

The government of Israel provides the services of 3 technicians, one in the Bas Boën project, one in the Ilots project, and one who provides assistance

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18/ As noted in Chapter 4.C, however, the structures built in this area are reported to be crumbling for lack of maintenance.

to DARNDR in sorghum cultivation. These activities are expected to terminate in 1978.

In addition to the above bilateral and multilateral programs, probably several hundred private and voluntary agencies (PVOs) are working in Haiti. The U.N. estimated that 85 of the larger and more visible programs contributed approximately US$12 million (including US$4 million in PL-480 commodities) in 1975. Their efforts are not well coordinated, and relatively little is known about the activities of most. However, it is believed that their generally modest efforts in agriculture and community development are increasing.

Several observations may be made on the AID and other donor programs listed above.

a. There is a strong emphasis on area development programs, a strategy that is consistent with the GOH's stated objective of decentralization. As we have noted above, this is an appropriate vehicle for attacking a series of interrelated constraints. Admittedly, proliferation of specialized autonomous agencies can have serious negative consequences for national-level budgeting and the health of national organizations in extension and other agricultural services. But the Haitian experience with centralized services has not been good (too often they have focused on just one or two constraints), and the potential advantages of a decentralized approach seem at least in the Haitian case to outweigh the disadvantages.

b. Considerable attention is being paid to strengthening DARNDR's institutional capacity through programs devoted to planning, overall management, and the training of skilled upper- and middle-level technicians. As we have noted, institutional weaknesses in DARNDR are a major obstacle to agricultural development. Additional assistance is needed in this area, but above all what is required is a significantly greater commitment of

resources by the GOH.

c. Assistance in erosion control has been provided only on a modest scale. Up to the present, this could be justified because of the need to evaluate the costs, benefits, and difficulties of implementing such projects in the Haitian ambiance. By now sufficient knowledge should have been gained to permit the planning of new programs on a larger scale.

d. One of the important ingredients of an erosion control project, as we have seen, is community organization. The formation of SACs, conseils communautaires, and other base-level groups has been an important part of a number of programs funded by AID and other foreign donors. In this writer's view these efforts--which given the obstacles faced must be viewed as long-term--should become an even more important part of present and future projects.

e. Another important element of erosion control projects is land tenure security. To date, little attention seems to have been given to this issue.

## FUTURE PLANS OF OTHER DONORS

The most ambitious schedule of proposed agricultural development activities over the remainder of the current agricultural plan period is that of the IDB. Projects reportedly under consideration include penetration roads in the Cul-de-Sac, Southern Highways, and Central Plateau regions, followed by integrated rural development programs in these locations. Also being considered are a second-phase loan to continue efforts under the current integrated rural development program in the Artibonite;another loan to IDAI for agricultural credit; and a loan for a nationwide fish-pond program. The tentative loan amounts and approval dates are as follows:

| | Amount (US$ million) | Tentative |
|---|---|---|
| Cul-de-Sac I | 11.0 | 1978 |
| Fish Ponds | 5.0 | 1979(?) |
| Artibonite II | 12.6 | 1980 |
| Southern Region I | 9.0 | 1980 |
| IDAI | 6.4 | 1980 |
| Cul-de-Sac II | 27.0 | 1981 |
| Central Plateau | 18.0 | 1981 |

CIDA is preparing a project for the construction of storage facilities, the tentative cost of which is US$2.4 million.

The World Bank is considering a second-phase loan for the regional development program in the North. It is also planning to finance the establishment of a 2-year Ecole Moyenne de Développement in this region. Plans call for the formation of 50 agricultural technicians each year and 50 animation agents every 2 years. The curriculum will be similar to that of the Ecole Moyenne in Damien and will incorporate the improvements suggested by CIDA for the latter. All students will be required to study the same subjects during their first year, and in the second year they will choose to specialize either in agriculture or in community development. The new school will recruit its first students in 1981.

The French government is considering providing assistance for an integrated rural development program in the Jacmel region. Consideration is also being given to the development of livestock activities in the Central Plateau, perhaps in collaboration with the IDB or World Bank.

FAO plans include a livestock assistance project, costing US$700,000 and beginning in 1979; a second, 5-year phase of the erosion control project in the Limbé region; and a program for the marketing and storage of basic grains (corn, sorghum, and rice).

The government of Taiwan is considering a technical assistance project in the growing of bamboo. It would be similar to its current rice program in the Artibonite.

Israel plans to concentrate its future technical assistance efforts in the Cul-de-Sac, as part of the proposed IDB regional development program.

In reviewing these proposed programs, several brief comments may be made:

a. The GOH and the foreign donor agencies are strengthening their commitment to regional development programs

b. Erosion control will still receive relatively little attention (except to the extent that it is incorporated into regional development programs, which is difficult to determine)

c. It is not clear if greater attention will be given to the issue of land tenure security

d. It is not clear what efforts at base-level organization will be undertaken as part of the various regional development programs

e. Little seems to be planned for strengthening DARNDR institutionally, apart from programs already under way

f. The number and scope of the proposed programs, together with existing ones, brings the absorptive capacity issue to the forefront

## F. THE ISSUE OF ABSORPTIVE CAPACITY

### 1. Introductory Comments

Foreign assistance to Haiti has increased rapidly during the 1970s. Balance-of-payments data in Table 1.6 show that net government transfers rose modestly from US$6.9 million in 1970 to US$9.2 million in 1973, but then jumped sharply to US$33.8 million in 1976. The 1977 figure is believed to have been much higher. In the long-term capital account, which showed a net public capital outflow during 1970-74, net inflows reached US$24.9 million in 1976. Even after discounting for inflation, the expansion of activities financed by foreign donors has been substantial. Given the prospects for continued high levels of assistance in the coming years, the issue of absorptive capacity must be raised. As we shall see below, there is good reason to question the ability of the Haitian government effectively to absorb the levels of foreign assistance contemplated during the duration of the 1976-81 plan period.

The absorptive capacity issue has at least 3 dimensions: the relationships between (1) GOH financial availabilities and program requirements, (2) manpower supply and manpower demand, and (3) administrative/managerial capabilities and program requirements. None of these dimensions is easy to quantify. Indeed, trying to measure absorptive capacity is like trying to catch a will-o'-the-wisp. Nevertheless, this writer, who once doubted that there really was such a thing, has become convinced that the concept does in fact have analytical meaning.

It is important to bear in mind that absorptive capacity can be increased fairly rapidly in the short or medium run by government choice. For the public sector as a whole, this requires a transfer of

resources from the private sector to the government, primarily through the tax mechanism. For any particular sector, such as agriculture, a given level of resources could be reallocated in favor of that sector. In other words, what we currently perceive to be a serious absorptive capacity problem for the agricultural sector could become less serious if the government undertook measures significantly to increase its own contributions to agricultural development. External donors, of course, could by-pass this problem by providing budget support under one scheme or another; but this is only a stop-gap measure, not a solution to a fundamental problem. It should be noted in this context that gross domestic savings as a percentage of the GDP are estimated to have declined from an average of 7.6 percent during 1970-72 to 4.1 percent during 1974-76, suggesting that foreign savings have been substituting for--not supplementing--domestic savings.[19/]

2. The Financial Dimension

In the following paragraphs we present rough estimates of the financial resources likely to be available to the GOH during fiscal years 1978-1982. Likewise, we shall present estimates of the counterpart financing required for major development projects (see Table 7.3). It must be emphasized that these are rough estimates only; but the direction in which they point seems clear.[20/]

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19/ It is not clear how much of this decline might be attributed to private savings. Nevertheless, the downward trend in total domestic savings, and the very low savings rate, are causes for concern.

20/ The analysis presented below is drawn from Defay (1978:40-56). Some of the data used in this analysis differ from those presented in Chapter 1.I, but this does not fundamentally alter the conclusions reached. For additional details on the model and its assumptions, see Defay's paper. Note that counterpart requirements for smaller programs are not included in these estimates.

Table 7.3

Estimated Counterpart Investment Required under Major Existing Projects and Projects Under Consideration by Foreign Donor Agencies, by Fiscal Year, 1977-1981

(millions of US$)

| | Donor Agency | 1977 | 1978 | 1979 | 1980 | 1981 | Estimated Number of families Benefited |
|---|---|---|---|---|---|---|---|
| Integrated Development | AID | 0.2 | 0.3 | 1.9 | 1.9 | 2.2 | 23,000 |
| Regional Development (North) | IBRD | 1.2 | 1.3 | 1.4 | 1.3 | 1.3 | 4,000 |
| Regional Development (Petit Goave) | CIDA | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 13,000 |
| Regional Development (Artibonite I) | IDB | 0.1 | 0.3 | 0.3 | 0.2 | | 20,000 |
| Regional Development (Cul-de-Sac I) | IDB | | 0.2 | 0.3 | 0.3 | 0.3 | 1,800 |
| Small Farmer Development | AID | 1.7 | 1.0 | 1.0 | 0.2 | 0.2 | 12,000 |
| Regional Development (South) | IDB | | | | 0.4 | 0.5 | 2,000 |
| Regional Development (Jacmel) | France | | 0.2 | 0.2 | 0.2 | 0.2 | 1,000 |
| Regional Development (Gonaives) | FRG | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 1,000 |
| Regional Development (Cen. Plateau) | IDB | | | | | 0.4 | 2,000 |
| Regional Development (Artibonite II) | IDB | | | | 0.4 | 0.5 | 6,000 |
| Regional Development (Cul-de-Sac II) | IDB | | | | | 0.5 | 6,000 |
| Community Development (HACHO) | AID | 0.2 | 0.3 | 0.3 | 0.3 | | - |
| Agricultural Development Support I | AID | | 0.3 | 0.4 | 0.4 | 0.5 | - |
| Environmental Preservation | AID | | | 1.0 | 1.0 | 1.0 | 11,000 |
| Integrated Community Development | AID | | | 0.1 | 0.2 | 0.3 | - |
| Extension | FAO | | 0.1 | 0.2 | 0.1 | 0.1 | - |
| Institutional Development | CIDA | 0.2 | 0.3 | 0.4 | 0.6 | 0.6 | - |
| Ecole Moyenne de Développement | IBRD | | | 0.2 | 0.3 | 0.3 | - |
| Total | | 4.1 | 4.9 | 8.2 | 8.3 | 9.4 | 84,800 |

Source: Defay (1978:13).

To project local revenues available to the agricultural sector during the period 1978-82, a number of assumptions have to be made regarding the rate of economic growth, the composition of growth, possible changes in the tax structure, and the allocation of resources within the operational and development budgets. The problem is complicated by our inability fully to account for the sources of all government revenues (see Chapter 1.I). Bearing in mind these and other difficulties, let us proceed with the analysis.

Step 1. Some government revenues are levied on activities whose volume reflects the state of the economy; these include imports and the consumption of goods such as flour, sugar, and cigarettes. To project these revenues one must first predict how the economy will behave. For that purpose, a simple macroeconomic model was constructed to show the relationships among GDP, Consumption, Investment, Imports, and Exports. Once an assumption is made about the GDP growth rate (5 percent annually--high by historical standards for Haiti but plausible given recent events) the other variables can be determined from the model. Constant-price estimates for GDP are converted to current prices by assuming a 7 percent rate of inflation.

Step 2. Linear regressions are derived for corporate and individual taxes, import duties, other taxes, and non-tax revenues on the basis of data covering the period 1972-1976. Taxes on property, motor vehicles, and coffee exports are projected on the basis of a trend line. Remaining taxes are assumed constant for the length of the period.

Step 3. The percentage of current revenues allocated to the operational budget has been decreasing steadily since 1972. It is assumed that it will remain at around 40 percent during the next 5 years. The development

budget (net of PL-480 funds) is assumed to receive 31 percent of current revenues, leaving 29 percent for other expenditures. On the basis of recent trends it is assumed that the agricultural sector will obtain only about 8 percent of both the development and operational budgets during the period under consideration.[21/]

The results of this brief analysis are presented in Table 7.4. Operational expenditures for agriculture would reach ¢32 million by 1982, compared with ¢21 million in 1977. In real terms this increase is small since the budget would have to increase to ¢28 million in 1982 just to keep pace with the projected rate of inflation. Over the next 5 years, then, the agricultural sector, given the assumptions made, would not have a significantly greater capacity to purchase supplies and increase salaries. Furthermore, revenues from the development budget would not be sufficient to cover the local counterpart expenditures of the projects listed in Table 7.3. In other words, if present trends continue Haiti would have to find additional resources--from PL-480 funds or other sources--to operate at the level of activity implied by existing projects and those being considered for approval in the next few years.

A change in priorities, of course, would increase the amount of resources going to agriculture. Raising agriculture's share of the development budget from 8 percent to 10 percent--a significant increase in percentage terms--would provide an additional ¢6 million annually. But a shift in priorities of this magnitude would still leave agriculture

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[21/] The assumed share of the operational budget is higher, and that for the development budget lower, that what would be suggested by the data in Chapter 1.I.

Table 7.4

Projected Operational and Development Budgets for the Agricultural Sector, 1978-1982[a]

(millions of gourdes)

| | 1978 | 1979 | 1980 | 1981 | 1982 |
|---|---|---|---|---|---|
| Operational Budget | 26 | 27 | 29 | 30 | 32 |
| Development Budget[b] | 20 | 21 | 22 | 23 | 25 |
| Local counterpart funds needed for projects listed in Table 7.3 | 21 | 24 | 41 | 42 | 47 |

Source: Defay (1978:56).

[a]Assumes that agriculture's share of both budgets is 8 percent throughout the period.

[b]Excludes PL-480 funds.

far short of the counterpart funds required.

3. The Manpower Dimension [22/]

Manpower requirements data are not available for all the projects listed in Table 7.3. But since most of the projects are based on integrated regional development schemes, and detailed manpower data are available for 2 ongoing projects of this type (in the North and in the Petit Goâve region), the data from these 2 projects may be used as the basis for estimating manpower demand.

The integrated development projects will require many trained Haitians, but fewer than might be expected by looking only at the size of the programs. This is because each project first concentrates on a relatively small area, then progressively shifts to others. Two stages are usually foreseen. In the first, a demonstration period, large numbers of experts are needed to introduce the services of the program to the farmer with the hope of increasing substantially his/her food producing capacity within 2-3 years. In the second stage, when conditions begin to improve, less supervision is needed and the project team can move to another area. In this manner, the original staff of the project remains basically unchanged. The additional staff required is generated mostly internally through on-the-job training.

Haitian project personnel may be grouped into administrative, professional, and technical manpower categories. For the 2 projects for which detailed data are available, the numbers in each category are as

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22/ Based on Defay (1978:14-25).

follows:

| | North | Petit Goave |
|---|---|---|
| Administrative | 8 | 13 |
| Professional | 21 | 56 |
| Technician | 41 | 61 |
| Total | 54[a] | 119[a] |

[a]Adjusted to reflect the fact that some professionals serve concurrently in administrative roles.

Nine different types of professionals, and 8 types of technicians, are working on these 2 projects. It is not advisable, however, to project each type of expertise needed in the next 5 years on the basis of such a limited sample. On the other hand, the 3-level classification made above is too general to permit the derivation of useful estimates of the skills needed. A logical compromise is to consider only certain skills. The skills chosen were based on the following criteria: (a) all important agricultural projects, in terms of relative impact on the peasant, must use such skills, (b) the individuals from the chosen professions must play important roles in the development of these projects, and (c) the agricultural sector must be a primary user of these skills.

On the basis of these criteria, 3 categories of skills were chosen for further analysis: agronomists, agricultural technicians, and animation agents. Although other professionals such as engineers, economists, and accountants are important in the development of integrated development projects, they were not selected because their future availability generally depends heavily on demand from other sectors of the economy.

Manpower demand was estimated by establishing relationships, based on the 2 projects for which data are available, between numbers of project personnel and numbers of families expected to be served by the project

(see Table 7.3). The results of this exercise, under both conservative (A) and optimistic (B) assumptions, are as follows:[23/]

| | Families per Employee | | | |
|---|---|---|---|---|
| | Actual | | Assumed National Standard | |
| | North | P.Goave | A | B |
| Administrative employees | 500 | 1,000 | 500 | 1,000 |
| Agronomists | 670 | 870 | 700 | 1,000 |
| Agricultural technicians | 200 | 590 | 200 | 500 |
| Animation agents | 800 | 680 | 650 | 800 |

Applying assumptions (A) and (B) to the total number of families to be served by the projects listed in Table 7.3, the following estimates of manpower requirements by 1981 were obtained:

| | A | B |
|---|---|---|
| Administrative employees | 170 | 85 |
| Agronomists | 120 | 85 |
| Agricultural technicians | 420 | 170 |
| Animation agents | 140 | 100 |

Manpower supply estimates are based on expected numbers of graduates from the FAMV, the Ecole Moyenne, the Institut Diocésien d'Education des Adultes (which has a 10-month course for animation agents), and the Ecole Moyenne de Développement (whose first graduates are expected in 1983). These estimates take into account the expansion of activities in the FAMV and Ecole Moyenne now being carried out with CIDA assistance.

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23/ Relationships used to estimate manpower requirements vary widely. Asmon (1973), for example, uses 250-1,000 families per agronomist and 100 per technician. St.Clair (1975) uses 1,000 families per agronomist and 250 per technician.

The projected numbers of new graduates are as follows:

| | Agronomists | Technicians | Animation Agents |
|---|---|---|---|
| 1978 | 39 | 0 | 30 |
| 1979 | 37 | 0 | 30 |
| 1980 | 25 | 40 | 30 |
| 1981 | 40 | 40 | 30 |
| 1982 | 40 | 40 | 30 |
| 1983 | 40 | 90 | 80 |

Adjusting for attrition (see Defay 1978:33-35)[24/] the projected net additional supply of these 3 types of manpower becomes:

| | Agronomists | Technicians | Animation Agents |
|---|---|---|---|
| 1978 | 31 | -4 | 29 |
| 1979 | 27 | -4 | 28 |
| 1980 | 14 | 36 | 28 |
| 1981 | 28 | 35 | 27 |
| 1982 | 26 | 37 | 26 |
| 1983 | 25 | 84 | 76 |
| Total, 1978-81 | 100 | 63 | 112 |
| Total, 1978-83 | 151 | 184 | 214 |

Comparing manpower requirements with the net additional supply figures above, the following surpluses or deficits (-) may be projected for the end of 1981 under the 2 alternative assumptions employed:

| | Assumption | |
|---|---|---|
| | A | B |
| Agronomists | - 20 | 15 |
| Agricultural technicians | -350 | -100 |
| Animation agents | - 30 | 10 |

These figures show that there would be a serious shortage of agricultural technicians, even under optimistic assumptions regarding the number of farmers with whom a technician could effectively work. Additional

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24/ The attrition rate assumed for agronomists is calculated to be 5.58 percent. This is based on an unweighted average of annual attrition rates. The weighted average is 6.04 percent, but adjusting the supply estimates accordingly would not result in any significant changes.

technicians are likely to be trained on the job, but not in sufficient numbers to eliminate the deficit. For animation agents, the figures show either a small surplus or a modest deficit, but the assumed attrition rate (2 percent a year) is probably too low. Also, it must be remembered that other programs (including non-agricultural programs) have a growing demand for these types of workers. While untrained people can be found to fill these positions, many of them would probably not be very effective. The situation for agronomists does not appear to be too serious, but a problem could develop if agronomists are recruited for new administrative and managerial positions, as seems likely. There are many Haitian agronomists working overseas, but few are likely to be attracted to return, even to work on projects for which salary supplements are provided. Finally, for all types of manpower, the above projections do not take into account additional demands by other DARNDR projects and programs.

In summary, it appears that manpower shortages will act as a major constraint to the effective implementation of the level of project activity contemplated by 1981.

4. The Administrative/Managerial Dimension [25]

Even if adequate numbers of trained manpower were available, this would provide no guarantee that sector development goals will be reached. Trained specialists must be placed in an environment that promotes change, and in general this kind of environment does not now exist. Although this statement is not easily quantifiable, certain unmistakable signs are present.

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[25] Based largely on Defay (1978:25-29).

As of December 1977, 472 agronomists had graduated from the FAMV. Of this number, 57 are studying abroad, are deceased, or have not been located; 36 are working in the private sector; and 147 (35 percent) have emigrated. Such a high percentage of emigration among a group of technicians so sorely needed in Haiti is cause for concern, and it must be inferred that they were not presented with an attractive alternative.

Fewer than half the agronomists (42 percent) employed by DARNDR work outside of Port-au-Prince. In other words, these scarce human resources are not being used efficiently in areas where they are most needed. From all accounts, agronomists working in the countryside do so under very trying conditions, and they lack supplies, vehicles, and even the bare minimum of office space. Under these circumstances, their contribution to agricultural development is minimal.

Although a detailed survey of all administrative, professional, and technical employees in DARNDR was not conducted, a large number of professionals were interviewed. A high proportion of these (especially the junior staff) expressed dissatisfaction with their work. Their reasons included lack of meaningful assignments (many were idle), the inertia of the bureaucratic machinery and its reluctance to introduce change, the lack of work incentives either in the form of rewards for good work or penalties for lack of performance, and arbitrariness in assignments of personnel to jobs for which they had not been trained properly. Although a certain amount of "grumbling" seems to be part of every large organization, the level present in DARNDR appears to be high even though the new director draws high praise from his staff.

A few people in DARNDR continue to keep a great deal of information to themselves while keeping subordinates in the dark with respect to the

details of many important programs. Such behavior may be useful in the short run because it decreases the chances that a junior employee will take a wrong initiative. It also has the advantage of consolidating one's position in the power structure, although this may occur at the expense of team spirit and efficient management. But in the long run this behavior leads to discouragement and a lack of employee initiative.

Although important measures for the decentralization of decision-making in DARNDR have been instituted recently, authority is still very centralized. As a consequence, decisions are often postponed because one person is absent or lacks time to study a matter.

These observations do not adequately deal with the many significant, positive changes recently instituted in DARNDR and related agencies. Also, it must be admitted that the behavioral patterns discussed above are present to some degree in most institutions. Still, their continued predominance in the agricultural sector, despite genuine ameliorative efforts by dedicated public servants, seems to suggest that a more fundamental phenomenon is at work.

These symptoms seem to indicate that the institutions serving the agricultural sector, and in particular DARNDR, are experiencing a "change of phase" which will become more pronounced as more aid is provided. Before the recent aid infusion in the form of relatively complex integrated development projects, these institutions were functioning with a management system based on centralized decision-making, the absence of formal procedures, and informal direction with the assistance of "helpers" instead of middle managers. The increased size and complexity of the sector's operations call for the coordination of a variety of tasks, the production of large amounts of information, and the design of relatively sophisticated control mechanisms.

Unless a proper management structure is adopted, public institutions will be ineffective in reaching their goals even if their employees are able and dedicated and the directors are persons of great abilities. However, the introduction of a better management structure is not easy; it calls for change in basic concepts, basic principles, and individual values.

The type of situation that confronts the agricultural sector is not foreign to other sectors, other countries, or private business organizations. It may be useful, then, to indicate some of the strategies that have been adopted in the past to implement similar institutional changes.

a. The creation of a parallel organization. Perhaps the best-known examples of such a scheme can be found among the various public and semi-public organizations of the Commonwealth of Puerto Rico. This alternative implicitly acknowledges that existing structures and vested interests are too solidly entrenched to be challenged openly. Therefore, institutional change is implemented with new programs. In addition, important tasks are increasingly assigned to staff members belonging to a parallel organization, which in the case of Puerto Rico often function as a public company. This is a relatively costly alternative since it chooses not to use available manpower, and in addition it accepts the risk that the parallel institution will disappear when the new programs end.

b. The hiring of private firms to undertake most of the productive work of the agencies. This variant is used in many U.S. agencies. It allows a relatively small group of public employees to implement numerous and large projects. It also provides added flexibility in the hiring of individuals and often obtains excellent results. However, not all types of work can be passed on to the private sector. Although there are no set rules, it would seem that the more political the assignments, the

less likely the private sector will perform them satisfactorily.

c. The modification of existing institutions. This strategy tends to be more difficult to implement than the others because it attempts to change the mentality of people who have risen through the system, understand its intricacies, benefit from it, and, therefore, are unwilling to change it.

What seems to be happening in Haiti is that a combination of the first and third strategies is being adopted. While several donor agencies are providing assistance to strengthen DARNDR's institutional capabilities, parallel organizations are being established at the regional level (with the assistance of some of the same donor agencies) to implement integrated rural development programs. Despite the risks of a decentralized approach, a case can be made for giving it a chance in Haiti. This will require a long-term commitment by the donor agencies to the regional development programs they are funding.

G. A.I.D. POLICY AND RESOURCES

Overall U.S. assistance strategy in Haiti, as stated in USAID/Haiti's June 1977 Development Assistance Program (DAP) document (USAID/Haiti 1977: 34), is

> To help rural inhabitants achieve a better life by developing local institution which
>
> -- participate in programs to increase production and income in rural Haiti;
>
> -- create a framework for government programs to provide essential services in rural Haiti.
>
> To strengthen government and private institutions -- particularly those involved in rural development and in providing health and family planning services -- which in turn will help to create local institutions able to provide essential services and to introduce new ideas to the people of rural Haiti.
>
> In cooperation with other donors, to link the size of the U.S. development assistance program to the self-help efforts of Haiti.

Proposed strategies for overcoming specific constraints, all of which directly or indirectly affect agriculture, are as follows:

> Lack of social cohesion and organization: Encourage government and private groups to design and carry out development programs which will increase social cohesion by creating new local institutions and orienting existing institutions toward developmental objectives. Thus, assist Government programs to increase number, effectiveness, and roles of local voluntary groups such as community councils, precooperative and cooperative organizations, e.g., Sociétés Agricoles de Crédit.
>
> Peasants' isolation: Encourage government and private groups to increase the flow of developmental ideas and services to the rural people.
>
> Peasant suspicion of government: Design projects which the peasant will recognize as a benefit to him. Monitor project implementation closely enough to assure that the project involves "fair play" for rural Haitians and meets basic standards of social justice.
>
> Government's patronizing attitude: Encourage the government to accept Haitian peasant culture as being of merit and to utilize existing customs, religion, institutions, and language as a basis for development.
>
> Weak government institutions: Strengthen government institutions. Encourage government to establish effective methods of using the private

Haitian sector to provide services. Encourage the government to work out mutually satisfactory arrangements for using foreign private groups (PVOs) in development work, and for involving private foreign investors in the development effort.

Ineffective government personnel: Give priority to helping government to improve existing government structure and effectiveness of current employees before moving on to major expansion of personnel.

Inadequate resources: Urge the government to provide at least token salary increases to all government employees while providing additional budget allocations for operating expenses and salary reform to development services responsible for programs of increasing production or collecting revenue or planning development activities; e.g., the agricultural section of the Ministry of Agriculture, Ministry of Public Works, revenue collection agencies, CONADEP, top administrative and planning sections of other Ministries.

Low customs receipts: Continue to focus attention of donor community on need for customs reform and cooperate in efforts to persuade the government to run an honest and efficient customs collection program which eliminates favoritism for certain importers.

Poor use of present resources: Continue to focus attention of donor community on this issue and cooperate in efforts to persuade the government to use all receipts effectively -- including Régie du Tabac and special account funds for developmental activities such as education, health, encouraging the formation of local institutions.

Poor maintenance of capital projects: Include in design all such projects a program to motivate some target groups to want to maintain physical structures and create or strengthen an institution(s) to maintain physical structures.

Foreign donor programming techniques: Place maximum possible responsibility on the Haitian government for the selection and design of projects.

Disincentive effect of certain foreign aid: Experiment with various program approaches which vary the proportions between

-- time spent on organizing local groups,
-- motivation and education,
-- payment in cash only,
-- payment in food and cash
-- payment in food only

Need for self-help: Link U.S. assistance to Haitian self-help efforts so that there will be a Haitian quid pro quo for U.S. economic help.

Low absorptive capacity: Cooperate with other donors in keeping size of total development effort at level which can be absorbed effectively by Haiti. Work to increase the absorptive capacity of the Haitian economy.

Inadequate coordination: Encourage the government to give CONADEP more power to coordinate aid requests and improve preproject approval coordination among donors.

In implementing the agricultural development strategy, the DAP document calls for the use of the following criteria:

-- overriding priority to increased food production and improved levels of living of small farmers;

-- program balance among the generalized development areas expressed above [i.e. intensive lowland agriculture, hillside agriculture, and off-farm employment opportunities];

-- focus within projects on income-generating objectives, both as a source of motivation to farmers and as a basis for sustained long-term development;

-- inclusion within projects as required of all supporting or ancillary efforts which are necessary to project success. These may include, but are not necessarily limited to

  -- provision of adequate infrastructure, e.g., feeder roads, buildings, warehouses;

  -- adequate research base;

  -- functioning and efficient government services;

  -- agricultural inputs, e.g., fertilizer, seed;

  -- functioning market system;

-- in new or untried project areas, implementation of pilot actions in order to develop experience upon which to base large-scale efforts;

-- integration of project structure into existing governmental structure, and strengthening of that structure as needed to insure project success;

-- project design which maximizes the use of local community organizations as the project vehicle and the strengthening of those organizations as required to achieve project objectives.

In its project development, A.I.D. will pay especially close attention to

-- the implications of the project with respect to Haitian absorptive capacity;

-- the joint elaboration of projects in full collaboration with interested entities of the Haitian government;

-- close cooperation with other aid organizations.

In general, there is a high degree of correspondence between the constraints analysis in the present study and that in the DAP document. There is also close correspondence between the strategies recommended in the DAP document and what we shall propose below. A few differences in emphasis, however, deserve comment. The DAP document, though mentioning the need to take land tenure insecurity into account in project development (p. 73), did not emphasize this issue as much as the present study. More detailed research since the DAP document was prepared has convinced this writer that land tenure insecurity is a major obstacle to agricultural development in Haiti.

Another difference is in the importance attached to AID assistance in the production of basic foods, particularly grains. This is emphasized more in the DAP document than in the present study, though in both cases a balanced strategy directed at both coffee and food grain production is contemplated. Actually, the difference in emphasis is more apparent than real. Food grains receive highest priority in our recommendations for agricultural research below, and erosion-control projects would directly benefit food grain producers. Considerable attention is also given to food grains in some of the area development projects and marketing and storage projects planned by other donor agencies.

Other differences in emphasis between the DAP document and the present study will become apparent when our proposed strategy is discussed below.

Resources available for overcoming constraints to agricultural development in Haiti include not only regular AID funds but also PL-480 Title I and Title II resources. As we indicated in Chapter 5.A.3, great care must be taken in programming PL-480 imports to avoid disincentive effects on domestic food grain production. Steps should also be taken to guard

against the use of PL-480 Title I counterpart funds as substitutes for--rather than supplements to--domestic resources.

## H. PROPOSED A.I.D. STRATEGY AND PROGRAMS, FY 1978-FY 1982

### 1. General Strategy Considerations

A significant improvement in the level of living of Haiti's rural poor must be viewed as a very long-run objective. For the medium term, a reasonable objective would be simply to halt the deterioration in living standards which most rural residents seem to have been experiencing for at least 2 decades and perhaps much longer. This statement, of course, applies to the rural populttion as a whole. Living standards among some segments of the rural population are likely to rise in the next few years through the effects of projects now being implemented by the GOH with the assistance of foreign donor agencies. But even if the very ambitious scope of the combined foreign assistance effort did not face a serious absorptive capacity problem, the great majority of rural families in Haiti would still be largely unaffected by present and proposed projects. With the rural population continuing to grow and exerting more pressure on already overworked land, it does not require much perception to see that living standards for many Haitian families are likely to continue falling for some years to come.

Is this prognosis excessively gloomy? Historical evidence suggests that it is not. It was the experience of today's developed countries that living standards of the poorest segments of the population declined during the nineteenth century when economic growth began to accelerate--under much more favorable conditions (Adelman and Morris 1977). But even if we refuse, like this writer, to be led by this evidence into some kind of historical determinism, it must be admitted that the obstacles to radical socio-economic change in Haiti are formidable; and without such radical changes, improvements in the lives of most rural Haitians will be slow in coming.

Given the constraints facing agricultural development in Haiti, attempts to overload the capacity of the country effectively to absorb new projects are likely to have unfortunate consequences--implementation delays due to lack of counterpart technicians and/or funds; poor project implementation because managers are too inexperienced; deteriorating productivity of overburdened senior administrators in DARNDR, etc. 26/ Accordingly, this writer would recommend that efforts in the next few years concentrate on consolidation and improvement of existing programs and on institution building, including a variety of short- and long-term training programs, both in-country and abroad (with emphasis on the former). This does not preclude the initiation of new projects--indeed, we are about to recommend some--but these projects should be relatively few in number.

The project recommendations below take into account not only constraints and absorptive capacity but also the activities of other donor agencies. Since other donor programs are adequately addressing constraints in such areas as extension, marketing, and storage, there appears to be no significant role for AID in these areas during the next 4-5 years. However, AID may have a role if other donor plans change. AID may also wish to consider a program in secondary-level agricultural education--though the shortage of agricultural technicians might better be dealt with through an expansion of other donor programs.

2. Specific Projects and Programs

a. Erosion Control and Erosion Control/Irrigation Packages. The response by foreign donor agencies to the soil erosion constraint has been slow. The U.N. has financed erosion control projects in the Les Cayes and Limbé areas, and other agencies have funded smaller

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26/ In the short run, these bottlenecks can be overcome through greater use of expatriate personnel. But this writer would argue that such a strategy would be undesirable and of questionable long-run benefit.

projects. Little is known about these efforts, though it appears that they have not been particularly successful. No systematic evaluation has been made either of project costs or of the factors contributing to project success or failure. The difficult task of measuring net social benefits has received little attention. Failure may well be attributable to land tenure security, but lack of appropriate technology, trained technicians, community organization, or alternative production possibilities are among other possible reasons.

The decision by AID to postpone a relatively large-scale erosion control effort in Haiti seems to be a wise one in view of the uncertainties involved. AID should move quickly, however, to undertake several studies to clarify project cost and benefits, manpower requirements, and constraints to project success. These studies are identified in the concluding section of this chapter.

If these studies show that technical and socio-economic constraints can be overcome, and benefit-cost relationships are found to be acceptable, a relatively large-scale project might be undertaken, perhaps as early as FY 1980. The size of the project would depend not only on the number of suitable sites recommended but also on the number of trained technicians likely to be available. Local cadastral surveys may have to be a necessary project component. It will also be important to relate erosion control efforts to production and marketing improvements.

There is great potential for increasing production on Haiti's irrigable lands. But the potential benefits can be much diminished if lack of attention to soil erosion results in rapid siltation of irrigation canals and ditches. Accordingly, irrigation projects should be part of comprehensive watershed management programs including soil erosion. 27/

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27/ As we noted earlier in this Chapter, DARNDR has already adopted such a policy.

b. Institution Building

1) Base-level Organizations. Soil conservation and improvements in crop yields on hillside lands will be difficult to achieve without cooperation among farmers in erosion control measures. Cooperation is also required if irrigation systems are to operate efficiently. In addition, cooperative efforts facilitate the distribution of credit, the marketing of farm products, and the purchase of agricultural inputs.

USAID/Haiti already is helping to organize and strengthen farmer organizations--e.g. SACs and cooperatives in the coffee production program, and conseils communautaires through the efforts of HACHO. More attention should be given in the coffee program to base-level institution building. An integrated community development project, now in the early planning stages, focuses on rural public works such as small irrigation systems, feeder roads, and erosion control structures. Care should be taken that concern with public works does not overshadow the institution-building efforts. In addition, field workers must be aware of the land tenure situation in each community, since tenure insecurity can hinder the formation of a strong, permanent, base-level organization.

Apart from projects focusing on community development, all other projects with direct farmer contact--e.g. those in erosion control, credit, and marketing--should have a strong local institution-building component.

Given the weakness of cooperative traditions in Haiti, community development projects must be viewed as long-term efforts. The precise nature of the permanent organizations to be established should not be decided in advance but should evolve from community members' own needs and traditions. Community development programs should provide not only leadership training but also education for the general membership.

2) DARNDR. Earlier in this chapter we identified institutional weaknesses in DARNDR as a major constraint to agricultural development.

AID is already addressing this problem by providing assistance to DARNDR in management systems; but the problem, as pointed out in Part F of this chapter, is a deep-rooted one whose solution will require more than good systems.

Established organizations with a long history of institutional stagnation are resistant to pressures for change, and in DARNDR's case the problem is complicated by declines in real operational budget allocations and real salaries. Given these financial problems, institutional strengthening will be difficult even under a well-designed management assistance project. But given the increased number and complexity of externally-financed projects for which DARNDR is responsible, there is still a good case for continuing this effort. The emphasis should be on short, in-country training programs institutionalized within DARNDR. The effort should continue well beyond the scheduled termination of the present project.

At the same time, attention needs to be given to strengthening some of the component parts of DARNDR's general administrative services, particularly those related to data collection and analysis, planning, and programming. While other donor agencies are now providing substantial assistance in planning, programming, and the collection of marketing statistics, little is being done to improve DARNDR's ability to obtain good estimates of area cultivated, production, and crop yields on a regular basis.[28/] This writer endorses (with modifications to be discussed below) USAID/Haiti's plans to fill this gap by including an agricultural statistics sub-project in its proposed Agricultural Develop-

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28/ A small U.N. assistance effort, which was making little headway, was terminated in mid-1977 (Zuvekas 1977a:8-9).

ment Support II project (FY 1978). An improved data base would enhance DARNDR's ability to engage in effective planning and programming, thus complementing other donor efforts in these areas.

The statistics sub-project, covering a period of 3 years, calls for a GOH budgetary contribution of US$150,000 in the third year--a relatively large amount by Haitian standards for this type of supporting service. Also contemplated is the hiring of 9 full-time technicians--a manpower category for which demand will probably exceed supply given present donor assistance plans. Under these circumstances, consideration should be given to reducing the scope of the sub-project. While quarterly reporting should be maintained, collection of data on input use might be postponed to a later stage. In addition, the field transportation problem should be solved by means other than the purchase of 9 vehicles costing US$10,000 each and requiring significant current outlays of operating expenses, maintenance, and repairs.

3) Credit. Before AID considers a new program in agricultural production credit, Haitian credit institutions need to be strengthened and restructured. As we have argued earlier (see Chapter 6.D) it is difficult to justify the existence of 2 separate public credit institutions, and this writer believes that the operations of IDAI and the BCA somehow need to be combined. Also needed is a strong training program, oriented more toward development banking than the current AID-financed assistance provided to the BCA. Key managerial staff will require overseas training, preferably under an internship program of perhaps 4-6 months with a well-established development bank (e.g. in Mexico or Colombia). Additional in-country training should be provided for loan supervisors, accountants, and other staff.

Given the slow rate at which credit is being disbursed under the existing coffee production program, and the time required for institutional restructuring, a new credit program probably should not be contemplated until FY 1981.

4) Research. We have argued that the lack of research capabilities in Haiti is a major obstacle to agricultural development over the long run. USAID/Haiti plans to allocate the major share of its proposed US$4.0 million Agricultural Development Support II project to attacking this constraint. A total of 348 work-months of technical assistance is programmed for the 4-year period from FY 1978 to FY 1981; also contemplated is training for Haitian technicians (in-country, third-country, and U.S.) totalling 511 person-months.[29/]

The project envisions the construction of a seventh research station and the strengthening of the 4 stations currently assisted under various AID programs. (Of the remaining 2 stations, one is assisted by the World Bank and one by the Government of Taiwan.) In this writer's opinion the project tries to accomplish too much, too fast. It would require a large commitment of scarce GOH financial resources and technical manpower--resources which may not be available. In our view the project should concentrate on a smaller number of stations, so that Haitian resources are not spread too thinly and so that the institutional structure can be more easily strengthened. Research should be limited to a small number of crops, with priority going to food grains. Emphasis should be placed on improving the multiple-cropping practices employed by most small farmers in Haiti.

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29/ A small percentage of the technical assistance and training funds will be used for the agricultural statistics sub-project.

c. Coffee Production and Marketing. Coffee is grown by probably more than half of Haiti's farmers, and the sale of coffee is an important source of their income. Some persons might argue that coffee production should be discouraged and that assistance to farmers be concentrated exclusively on food crops; but this strategy does not fully take into account aggregate demand considerations (see Chapter 5.A.2). Farmers whose income rises because of export-crop activity will spend a high proportion of their increased income on food. For Haitian farm families as a group, the income elasticity of demand for food is likely to be 0.5 or even higher. This increased demand will exert an upward pressure on prices of basic foods, thus stimulating production. Conversely, stagnating or declining incomes restrict the growth of food demand, thus discouraging production of basic foods.

Continued AID assistance to coffee producers is an appropriate strategy in Haiti. There is considerable scope for increasing small farmers' incomes through improvements in both production and marketing. Experience with the present coffee production project, though, suggests that project objectives should be less ambitious. Technological packages in production need to be carefully tested before they are extended to farmers, and extensionists must know more about what they are extending. Until these project constraints are overcome, and the SACs have matured as base-level institutions, it would be premature to initiate a large-scale effort in small-farmer coffee marketing. Some pilot efforts in this direction are desirable, but a large-scale effort should be postponed for several years. While some coffee producers are exploited in the marketing process, there is no conclusive evidence to support the widespread belief that this is a major constraint to the improvement of small-farmer incomes (see Chapter 3.D.2).

Assistance to coffee growers should be viewed as a long-term commitment, so that base-level groups--including, eventually, organizations involved in processing and marketing--have adequate time to become institutionally mature. A long-term commitment implies a need for additional production credit; but as we argued above, a new AID project in this area should be initiated only after a reorganization of the national credit agencies. The new project should be based on a credit program which provides "package" loans to farmers, making credit available not only for coffee but also for food crops and perhaps even for consumption purposes (see Chapter 6.D).

d. Rural road construction. In our view, the lack of all-weather secondary roads and suitable feeder (access) roads is a major constraint to raising rural living standards. Improved transport lowers the cost of marketing farm products as well as the cost of providing and obtaining production inputs. It can also provide an incentive for farmers to alter their crop mix in favor of higher-value perishables.

AID is providing assistance in rural road construction through an Agricultural Feeder Roads project, and feeder roads are also being constructed under other AID-financed projects. These efforts should be continued, with priority being given to areas in which AID or other donors are undertaking other projects designed to increase agricultural production (e.g. projects in coffee production, irrigation, and soil conservation). Benefit-cost estimates for a number of possible road projects are provided in the recently-completed National Transport Study, whose assumptions regarding agricultural production possibilities in each area should be reviewed carefully. In some cases, it would seem that labor-intensive construction methods, such as those now being employed, would be appropriate. Payment of rural residents for construc-

tion work, in this writer's view, should be exclusively in cash. Careful attention must be paid to the possible effects of road construction on land tenure security.

## I. ADDITIONAL INFORMATION REQUIREMENTS

Given the lack of good socio-economic data for rural Haiti, it is tempting to present a laundry list of "high priority" research needs. Such an agenda, however, would be a standardized prescription that could be submitted for most any developing country, and it would be utopian to think that more than a few proposals could be acted upon in the near future. Moreover, the outlines of rural poverty in Haiti are clear enough to determine appropriate rural development strategies. Too often, additional research becomes a substitute for action.

At the same time, of course, action on the basis of faulty and unclear information can be dangerous. We have identified in this paper several important areas of uncertainty regarding land tenure, rural income and levels of living, and rural employment. It is time now to offer some suggestions for resolving some of these uncertainties, particularly as they pertain to major rural development projects now being considered.

1. A decision should be made about the advisability of a cadastral survey, the pros and cons of which were discussed above. Some type of farm-level survey should be undertaken to determine the attitudes toward on-farm investments of farmers who lack secure titles to the land they are said to own. This survey should have a very limited purpose, and the questionnaire will have to be very delicately worded and administered. Technical assistance from outside Haiti would probably be necessary for sample selection and survey design, but the active participation of Haitians knowledgeable about the issues is essential. In addition to this survey, which would not be very costly or time-consuming, more detailed information should be collected for the irrigated lands in the Artibonite where a cadastral survey has long existed, and where a new survey is been conducted under the IDB's integrated rural development project for that region. It would be

particularly valuable to know what kind of land disputes occurred at the time of the original survey, and how they were resolved. It would also be useful to consult with technicians working on the current survey and on a similar survey planned under the FRG-assisted project in the Gonaives area.

2. There is ample evidence that it is difficult to organize Haitian farmers into production or marketing cooperatives or similar groups requiring a formal, permanent, and relatively complex organizational structure. It is even more difficult for such groups to achieve their objectives. The recently-formed agricultural credit societies have more limited objectives and are less structured than true cooperatives, though perhaps they may evolve into this more complex form. There appear to be, however, some successful cooperatives in Haiti, and an examination of their operations may provide some clues about the reasons (literacy? outside leadership?) for their success and their likehood of survival without continued outside assistance. Given the small number of cases, such a study would be inexpensive; the payoff could be high.

3. Per capita income leaves much to be desired as a measure of well-being, particularly in countries like Haiti where many goods and services do not pass through the marketplace. While it is common practice to impute the value of food produced and consumed on the farm, no imputation typically is made for owner-built housing, exchange labor, and non-market personal services such as those provided by traditional medical practitioners. It is not clear how much these non-measured components of "income" vary from one part of Haiti to another. We do not even have uniform data on measured income by region. Especially lacking is information on changes in regional income or levels of living over time.

Since it is clear that almost all rural Haitians are included in AID's target population, there might seem to be no compelling reason to obtain comparative income or other socio-economic data for the country's various regions. A good case can be made, however, for institutionalizing the collection of time series data on a uniform basis in order to provide a means for determining project effectiveness. Base data are already being collected in many rural areas where projects are under consideration or are being implemented. Collected by a number of different Haitian government agencies and international organizations, many of these statistics are not available on a uniform basis. While each project has its own set of objectives and thus should collect data not necessarily needed by others, a case can be made for attempting to collect an agreed-upon core of data for all project areas. This is a decision that would have to be made by the Haitian government and agreed to by the various international organizations. These organizations are probably better equipped to undertake the data collection than any alternative group(s). Given the local or regional focus of many development projects in Haiti, this kind of non-random sampling over time, it can be argued, in many respects provides a more meaningful indication of change than a periodic nationwide sample survey, the results of which would give a less clear picture of the reasons for changes over time. The common core of data should be obtained also for several communities not participating in any government-assisted project.[30/]

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30/ Selection as a control-group community, of course, would not forever disqualify that group from assistance.

Rather than collecting time series data on income, we would propose instead that other indicators of well-being be utilized. A comprehensive, single indicator derived from a series of separate indicators would be useful but not necessary. The individual indicators would be valuable in themselves for focusing on such dimensions of well-being as housing, nutrition, health, education, transportation and communications, potable water, sewage disposal, electric power, farm implements and machinery, and consumer durables. Consumption items of less direct interest for public policymakers (e.g. clothing and personal services), could be ignored in the early stages of such research.

Agreement on a uniform core of regional development indicators, collected on a regular schedule--e.g., every 4 years--would not be easy to reach. But without such a reporting system it will continue to be difficult to make comparisons among communities or to determine what happens in a particular community over time. The method suggested for collecting the data may not be the most appropriate--data collection, for example, could also be done by the Institut Haitien de Statistique (IHS)--but the importance of uniformity should not be underestimated.

4. Little is known about the functioning of rural labor markets. Information on the amount of labor hired indicates considerable variation among communities, but it is difficult to make any conclusions on the basis of data from just a small number of communities. Evidence on wage rates and their regional variation is likewise scant. The number of landless rural laborers is a mystery, and knowledge of seasonal labor migration is limited. Information on these and other labor-market characteristics is important in planning for labor-intensive rural projects involving construction, erosion control, maintenance, and repair. Knowledge of farmers' dependence on hired labor is important in determining their potential demand for credit. Special programs might be considered for landless laborers if their numbers are found to be large.

A specialized labor-market survey would be useful for providing the above information. Such a study could probably be conducted by the IHS, with some outside assistance, but the IHS is busy enough trying to process the results of several previous surveys. A survey like this might also be contracted to Haitian social scientists operating out of the national university or a private research firm. The cost would be modest.

5. As we have already indicated, it is important to determine the manpower implications of erosion control projects. USAID/Haiti (1977:101) has recently estimated that these are likely to vary from less than 100 to more than 200 work-days per hectare on steep eroded hillsides. Terrace construction in the Jean-Rabel and Acul watershed areas is estimated to require 230 work-days per hectare (Franklin and Snyder 1975). These estimates span a wide range, but perhaps labor requirements will indeed vary by this much and can be determined only after the required engineering studies have been made in each watershed area.

Several erosion control projects are now underway, and it should be possible at this time to check the above estimates with actual experience. If some projects already have been completed, it would also be important to see what the experience has been with maintenance requirements. This is not really a "research project," since only a few simple inquiries are needed. But given the high degree of uncertainty regarding labor requirements for erosion control projects, this is an important task for project planning and budgeting purposes.

6. Given the apparent connection between land tenure arrangements and soil conservation efforts by small farmers (see Chapter 4.C), a study should be undertaken in areas of Haiti where soil conservation practices seem to be fairly widespread. The purpose of this study would be to gain some insight into the factors facilitating the adoption of soil conservation measures.

Palmer (1976) describes such activities in the Belladère area. Similar activities are easily seen by the casual observer in the Kenscoff area, on some hillsides visible from the Fauché-Jacmel road, and in other parts of the country. Palmer sees such activities as resulting from demographic pressures on the land, forcing acknowledgment of the need for erosion control measures. Murray (1977), on the other hand, found that population pressures in the Thomazeau area did not lead to widespread adoption of such measures.

The proposed study should determine if there are indeed significant differences in land tenure arrangements between areas in which small farmers routinely practice soil conservation and areas in which they do not. Assuming differences are found, an examination should be made of the nature of these differences and the forces which created them. Where no significant differences in land tenure arrangements can be found, a very close examination should be made to determine why the soil conservation ethic is observed by small farmers in some areas of Haiti while in so many other areas it is not. The results of this study should be very instructive to AID in the design of soil conservation projects.

7. While improved farm pratices under existing technologies can result in some improvements in productivity and farm income, sustained increases over the long run will require the adoption of appropriate mechanical, biological (e.g. improved seed varieties) and chemical inputs in the production of food grains, irrigated crops, and coffee. A specially designed farm-level survey would be useful to identify and estimate the impact of various behavioral and technical factors influencing farmers' decisions both to adopt and to use purchased inputs. Behavioral factors which should be examined include farmers' risk aversion, farm household consumption needs, and taste and preference characteristics. A study of this nature can help determine the productivity increases obtainable from purchased inputs and new practices and

identify the amount of increase required before farmers are willing to adopt and use new inputs and practices. Since subsistence farmers are generally risk averters, lack liquidity, and in the case of Haiti are largely illiterate, the study should also be concerned with (a) variations in production attributable to weather and to the effects of new inputs and practices on this variation; (b) variations in production attributable to allocative errors in the use of new inputs and techniques (e.g. improper water control in irrigated crops, improper fertilizer application rates); and (c) credit requirements. The results of this study should provide better information on the nature of farm-level demand for inputs. This information is essential to the development of an effective input marketing system, the present lack of which we have identified as a moderately important constraint to agricultural development.

Most the research suggested above is modest in scope. One might also argue, however, that a detailed, comprehensive, nationwide farm-level survey should be undertaken to obtain information not only on land tenure, income, and employment but also on technical production coefficients, credit, marketing, etc. Such a survey would be difficult to justify, though, unless the resulting data could be analyzed by agricultural economists, statisticians, and other technicians capable of defining and interpretating complex interrelationships among the variables. Neither the IHS, the Planning Unit in the Ministry of Agriculture, or the Planning Board (CONADEP), is now capable of this kind of technical sector analysis. It could, of course be done entirely by outside consultants; but if the Haitian government has no effective input into such a project, it is questionable whether it will be willing, or able, to use the output effectively. Planning for a sophisticated sector analysis, then, should be postponed.

An alternative to a comprehensive farm-level survey would be a less ambitious agricultural census or survey similar to those conducted in 1950, 1970, 1971, and 1975-76. 31/ Indeed, this is what the government plans to do in connection with the next population census, planned for 1980. This may well be the more desirable alternative, but a good case can be made for postponing the next census until about 1983, even though recently completed aerial photography will soon yield maps suitable for developing a good sample frame. Given the delays in processing census and survey data in the past, and the time needed to prepare the Third 5-Year Plan (1981-86), it is unrealistic to think that 1980 census data could be used as the statistical base for the Third Plan. If the Plan is to be more analytical and project-oriented than its predecessors, CONADEP, IHS, DARNDR, and other government agencies will have to devote a major proportion of their efforts during 1979-81 to its preparation. If a census unusable for the Plan is also undertaken during this period, there will be severe strains on the government's limited resources, thus treatening the quality of the Plan.

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31/ The 1975-76 survey covered some 1,800 rural households. The tabulations have not been completed, and it is believed that they will contain some serious errors (Zuvekas 1977a:5-6).

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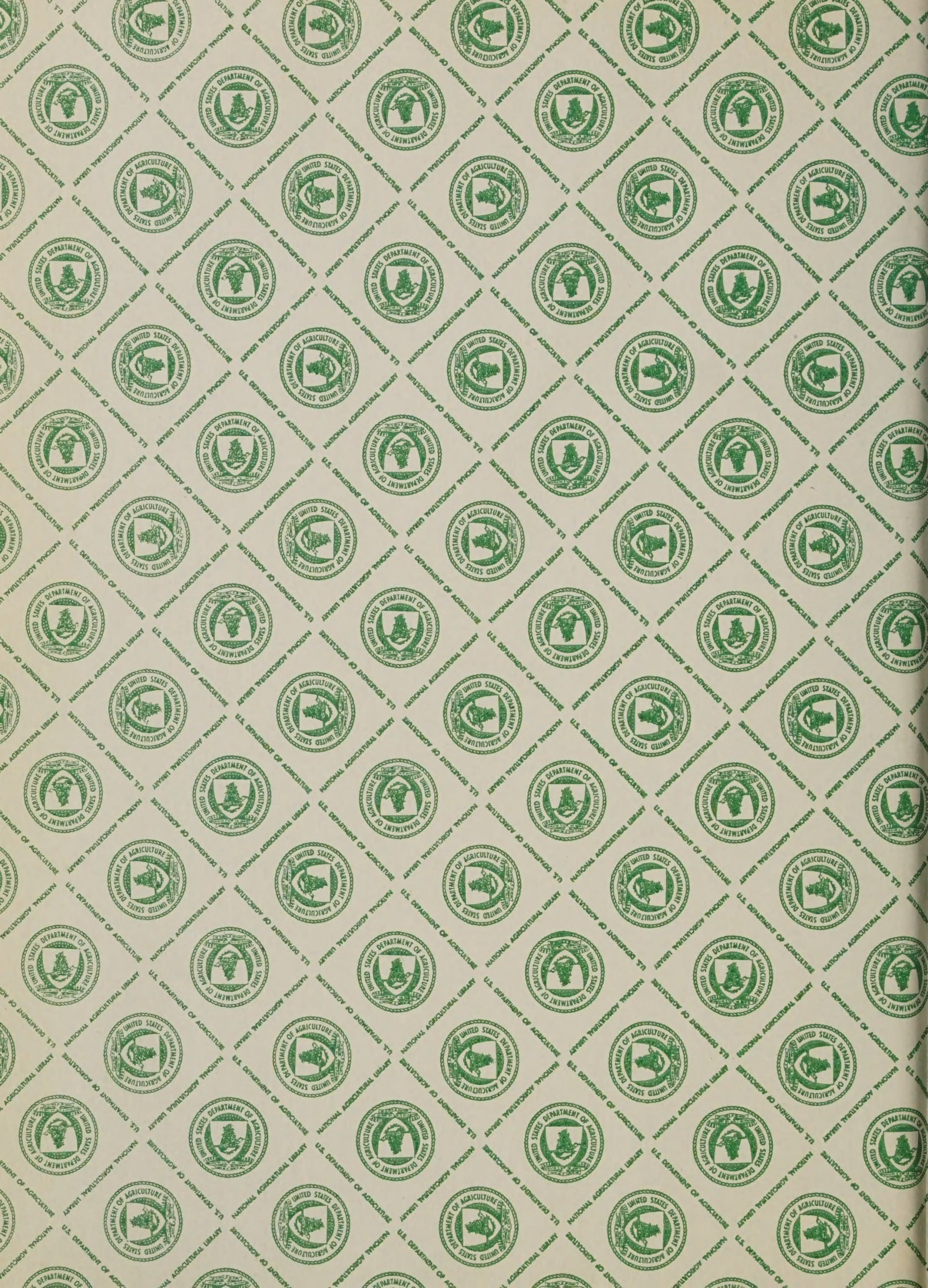
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